



# **ENTREPRENEURIAL FINANCE AND FINANCIAL ENVIRONMENT**

**7<sup>th</sup> International Scientific Conference  
Tartu, 16-17 November 2006**

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# **ENTREPRENEURIAL FINANCE AND FINANCIAL ENVIRONMENT**

**PROCEEDINGS**

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## FOREWORD AND ACKNOWLEDGEMENTS

Economics has been taught at the University of Tartu since its very foundation (1632). Initially, economic sciences did not constitute separate subjects but were lectured on as part of other subjects, for instance a professor of mathematics would also read a course on accounting. Importance of economics grew steadily with the development of market relations and after a break caused by wars when the university re-started activities in Tartu, four economics professorships at the Faculty of Philosophy were opened in 1803. One of these was the Chair of Cameralistics, Finance and Trade. We consider this event the beginning of systematic finance education at the University of Tartu.

Analogously to other transition countries major changes in the field of teaching and research of finance took place in the 1990s during transition to the market economy. It had to be studied and experience had to be shared. To that end international conferences provide excellent opportunities. Therefore the Institute of Finance and Accounting set a task to begin organising international conferences. The first of the kind was held in May 1994 on the topic "The Theory and Teaching of Finance and Accounting in a Transition Economy". The following four conferences mainly continued dealing with financial and accounting issues of transition economies. The sixth conference was the first to differ from the previous conferences by focussing on accession with the European Union which was supported by the peoples of the three Baltic States and which took place in October 2003.

The 7<sup>th</sup> International Conference of TU Institute of Finance and Accounting, which took place on November 16–17, 2006 was dedicated to the influences of enlargement the EU from May 2004 to the entrepreneurial finance and financial environment in the new EU member states. The present proceedings contain the best conference papers, which have been supplemented, and reviewers as well as conference discussions.



The majority of the conference participants are teaching staff and scientist from EU member states universities. Additionally we had several professors outside of EU: three professors from Saint-Petersburg University of Economics and Finance (Russian Federation) and professor from University of Zagreb (Croatia). Totally the conference participants came to Tartu from five countries outside of Estonia. The editorial board has decided to maintain that division in the present collection as well. Here you find two plenary papers: *Estonia's Prospects to Join the Euro Area* and *Financial Services Environment in Estonia*. Additionally these proceedings include 20 papers from panel sessions.

The papers show that next to the renowned professors there is a young generation of masters and doctoral students among the authors. Thus a continuous development of financial science is secured, difficulties of reforms in economics in Estonia as well in other Baltic states notwithstanding.

We are grateful to the Dean of the Faculty of Economics and Business Administration of University of Tartu, Professor Toomas Haldma for the welcome address and best wishes at the opening of the conference. We would like to thank the President of the Eesti Pank (central bank), Mr. Andres Lipstok who made an excellent presentation at the plenary session.

We would also like to thank the reviewers who read abstracts and papers and evaluated them.

The conference organisers would like to thank all participants who accepted our invitation and whose papers and very active discussions made the high level of the conference possible:

**August Aarma.** PhD, Associate Professor, Tallinn University of Technology. **Andrus Alber.** Advisor of Eesti Pank. **Meelis Angerma.** MA, PhD student, University of Tartu. **Maria Astrakhantseva,** PhD student, Saint-Petersburg University of Economy and Finance. **Vladimir Cvijanovic.** Assistant, University of Zagreb. **Peter Friedrich.** Dr. Professor, University of Tartu. **Jelena Hartšenko.** PhD student. Tallinn University of Technology. **Aaro Hazak.** PhD student. Tallinn University of Technology. **Andres Juhkam.** MA. Lecturer. University of Tartu. **Kaia Kask.** MSc. Lecturer. University of Tartu. **Kiril Kondratov.** University of Latvia. **Margus Kõomägi.** Lecturer, PhD student, University of Tartu. **Laivi Laidroo.** PhD student. Tallinn University of Technology. **Andres Lipstok.**

Governor of Eesti Pank. **Alexander Makienko**. University of Latvia. **Ekaterina Popova**. Dr. Professor, Saint-Petersburg University of Economy and Finance. **Katrin Rahu**. PhD student, Tallinn University of Technology. **Janno Reiljan**. Dr. Professor, University of Tartu. **Galina Reshina**. Dr. Professor, University of Latvia. **Inna Romanova**. PhD student, University of Latvia. **Priit Sander**. MA. Lecturer, University of Tartu. **Anna Stankova**. University of Economics Prague. **Dmitri Sokolov**. PhD student, Tallinn University of Technology. **Alexander Selishchev**. Dr. Professor, Saint-Petersburg University of Economy and Finance. **Mart Sõrg**. DSc. Professor, University of Tartu. **Elvira Zelgalve**. Dr. Professor, University of Latvia. **Janek Uiboupin**. PhD. Researcher, Turku School of Economics. **Jaan Vainu**. PhD. Senior researcher, Tallinn University of Technology. **Edgars Volskis**. PhD student, University of Latvia.

This conference had to tackle financial issues accompanying any conference as well. A part of those was the conference fee borne by the participants. We also received financial assistance from the Faculty of Economics of TU. Many thanks to everybody, who provided financial assistance to the conference.

I wish all participants successful financial research in the future and hope to meet all of you at the next conference in Tartu.

Professor Mart Sõrg  
Head of the Institute of Finance and Accounting

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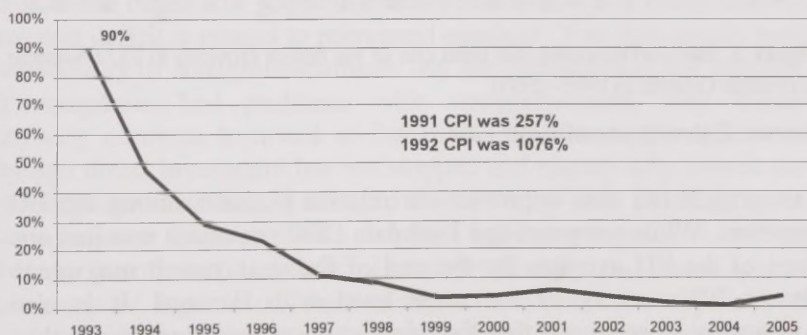
## PLENARY SESSION ARTICLES

### ESTONIA'S PROSPECTS TO JOIN THE EURO AREA

**Andres Lipstok**  
*Bank of Estonia*

The Estonian economic model has been in the centre of international interest and discussions as a model for a small open economy with a fixed exchange rate (1 euro = 15.6466 EEK). It has proved the currency board to be a splendid interim arrangement for achieving a stable exchange rate, decreasing inflationary expectations and responsible fiscal policy. Estonia has been able to show that a currency board arrangement can survive for more than a decade and be an important anchor to economic reforms.

Estonia introduced the kroon in a hyperinflationary environment and was able to reduce the inflation within one year from more than 1000 percent to less than 100. A hundred percent inflation is extremely high as well but for Estonia it was a strong signal that things would start to improve. As can be seen from the Figure 1, the pace of inflation came down every year rather fast and in the last eight years Estonia has enjoyed inflation rates below 6 percent.



**Figure 1.** Inflation came down sharply

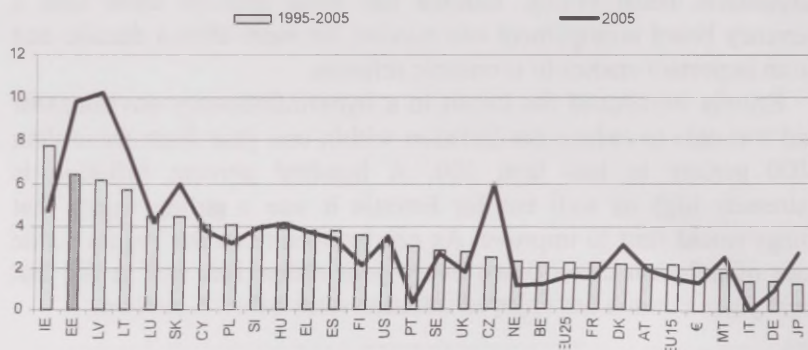
Source: Statistical Office of Estonia



One very important aspect of our success has been a clear orientation towards the EU and EMU membership. This attitude has been strongly entrenched in the minds of the society. So strongly that our course has not changed even despite frequent government changes. All government coalitions have accepted the principle that fiscal policy must be prudent in a currency board environment.

Outside politics, the anchoring of expectations towards the EU was crucial both for enterprises and the general public. They knew what to expect from the future. That helped to weather different reforms that were sometimes rather hard on people, but necessary in order to achieve what Estonia has achieved.

Looking at the past ten years, the Estonian economic growth has been the second fastest in the EU, right after the Celtic Tiger Ireland (Figure 2). And if we will redraw the same graph in a few years with updated figures, who knows, Estonia may end up first as our economic growth has been over 10 percent for the last six quarters.



**Figure 2.** Estonian economy has been one of the fastest growing in EU (Average Economic Growth in 1995–2005)

Source: Calculations of Eesti Pank

Fast growth has also improved our relative position among the EU members. While ten years ago Estonia's GDP per capita was just one third of the EU average, by the end of the next year it may reach almost 70% and be at the same level with Portugal. It is also noteworthy to point out that Estonia's starting point was lower than that of Poland, Hungary or Slovakia and the same as Lithuania's but by now Estonia has leaped ahead. This means that we must have done

several things right. Of course, economic growth is not something on its own, but clearly gives better possibilities for enterprises to expand their activities and for the Government to improve the social safety net, increase expenditures on education etc.

### **Recent developments and outlook**

Estonia's economic growth has been very strong in 2006, namely around 12 percent. But we believe that it has reached its peak and cannot be sustained at this level for any longer.

Together with rapid economic growth the labor market has witnessed several favorable developments as well. On the one hand, we have seen the unemployment level going down to the lowest levels since the beginning of 1990s. On the other hand, an increase in the labor participation rate can be detected. The problem of high unemployment has actually transformed into the problem of labor force shortages in some economic sectors.

One risk to our economy that has been present for more than a decade is the double-digit current account deficit. It is important to emphasize that in our case the problem does not stem from weak competitiveness but rather from very high investment activity, and more recently also strong consumption. Why do I believe that it is not about competitiveness?

First, our exports are growing fast and Estonian companies are actually increasing their market share in world trade. Second, a closer look at the balance of payments shows that almost half of the current account deficit is related to reinvested earnings. This denotes the high profitability of foreign investments that are reinvested in our country. If companies had problems with competitiveness, why would anybody continue to invest in Estonia? Furthermore, the inflow of foreign direct investment has not stopped and almost fully covers the current account deficit. Adding to this the long-term financing relations between Estonian banks and their foreign owners, it is evident that our current account deficit is not financed by short-term speculative capital. Instead long-term strategic investors play a major role.

Estonia's medium-term economic outlook seems also quite good, as the global environment and developments in Scandinavia are rather favorable. We expect the GDP growth rate to moderate somewhat

next year but it should still remain above 7–8%. This can only be achieved by higher productivity, since we cannot compete with low-cost countries in Asia or in the Balkans.

Estonia has a number of short-term risks as well. In addition to the current account deficit also the high credit growth raises concerns. Moreover, labor shortages in some sectors may point to the risk of overheating. The rapid wage growth characteristic of the beginning of 2006 will either continue or even pick up speed. Thus, in the future the main question will be how enterprises can increase productivity to cover their wage costs. But if economic growth will stay at around 7–8 percent for coming years and domestic demand decreases, these risks are manageable.

### **Outlook for euro adoption**

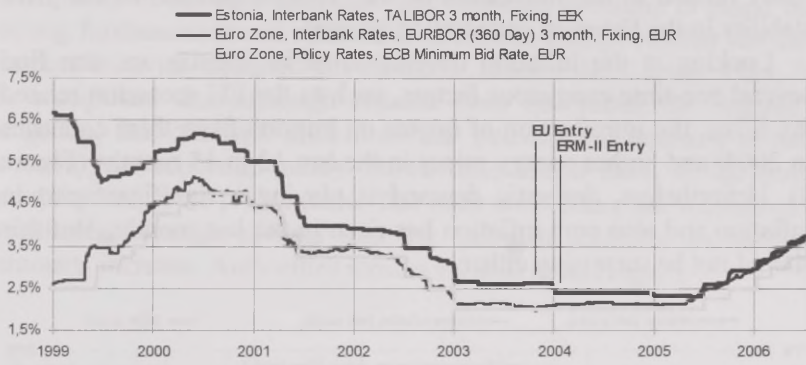
The objective of the Government and the central bank is to introduce the euro at the first opportunity. We are of the opinion that small open economies who have successfully operated under the fixed exchange rate regime for more than ten years are natural candidates for joining the euro area.

As the exchange rate of our local currency, the kroon, has been pegged to the euro and markets have adapted to functioning flexibly, it is only natural for Estonia to change kroons into euros and make full membership in the euro area an exit strategy from the currency board arrangement. The changeover to the euro will be costless to policy-making – Estonia does not need to abandon or completely change the main policies such as the exchange rate policy, interest rate policy, or fiscal policy. We have already made all the necessary changes to be politically ready along the way. That is why Estonia wants the changeover to take place as quickly as possible.

Furthermore, Estonia is very closely integrated with the EU and euro area economies. About 80 percent of our foreign trade is related to the EU and two thirds of foreign trade transactions are handled in euros. A clear majority of foreign direct investment in Estonia has come from present and future euro area members. Estonia's financial system is also very closely related to other EU members, as Nordic conglomerates dominate our banking system. Also, most of the loans are granted in euros.



Estonia joined the EU and the exchange rate mechanism ERM II in the first half of 2004. As can be seen from money market interest rates (Figure 3), as well as from the assessments of rating agencies, Estonia's accession to the EU and ERM II was a natural and expected step in our integration process. For the markets, it was basically a non-event as the interest rate convergence took place largely already in preceding years. As the local currency denominated money market is extremely thin, we have seen very bizarre incidents during the interest rate increase cycle of the European Central Bank (ECB) in the last half-year when Estonian money market interest rates have been temporarily *below* the euro area rates. This proves that for the markets there is basically no exchange rate risk between the Estonian kroon and the euro and our strategy to join euro area as soon as possible is credible also in the eyes of the markets.



**Figure 3.** EU and ERM2 accession had no major impact on money market rates

Source: Reuters EcoWin

## Maastricht convergence criteria and Estonia

We have always kept our long-term macroeconomic policy goals in check. Estonia is expected not to have difficulties in meeting most of the Maastricht criteria. The budget has been in balance or in surplus for the last six years and will be in surplus also in 2007. The central government has not borrowed from the international markets since

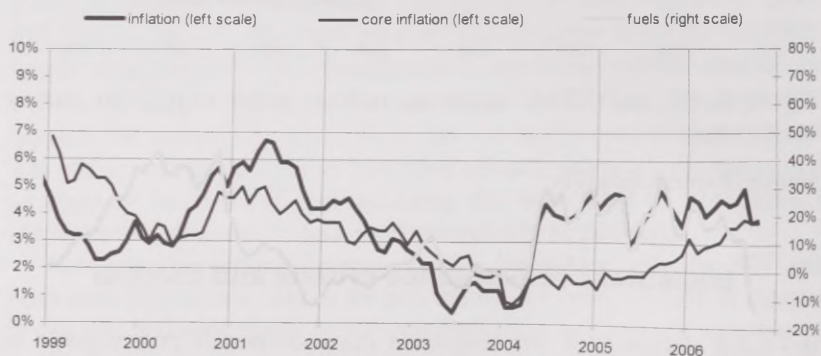
2001 and is not borrowing from the local market either. So, the debt level is the lowest among the EU members and decreasing further, being probably less than 3 percent of GDP by the end of next year.

Interest rates have decreased to the levels seen in most euro area countries. Although due to prudent fiscal policies, Estonia does not have government bonds used when assessing the interest rate criterion, we have reached an agreement with the European Commission and the ECB that in our case a proxy based on local private non-financial sector interest rates will be used.

The exchange rate stability criterion is not problematic either, as the kroon exchange rate has been fixed for more than 14 years now (to the euro for the last eight years).

This means that the only criterion difficult for Estonia to meet is that of price stability. I should stress right a way that the problem is really related to the fulfillment of the criterion and not to the price stability in the Estonian economy in general.

Looking at the inflation developments in Estonia, we can find several one-time exogenous factors, such as the EU accession related tax hikes, the introduction of quotas on imports from third countries in 2004, and higher energy prices in the last 12 to 15 months (Figure 4). Nevertheless, domestic demand is playing a significant part in inflation and also core inflation has risen in the last months. But this should not be surprising either.



**Figure 4.** Inflation has been closely related to oil price developments

Source: Calculations of Eesti Pank

Estonia's relatively high inflation rate reflects the catch-up effects associated with normal convergence process. If our price level is just 60% of the EU average, it is difficult to expect that the inflation rate should be the same as, for example, in Germany.

As the inflation rate of the past six months has remained at a level higher than earlier forecast, it is not possible to meet the goal to launch the single currency at the beginning of 2008. Given the most recent prognosis, the same goes for 2009. Neither the Government nor the central bank plans to intervene in order to artificially reduce the inflation level. We believe that stable macroeconomic environment is of utmost importance for investors and any drastic policy change could undermine Estonia's credibility. Moreover, such one-off changes might be difficult to reverse.

We do not expect any considerable problems in relation to a short-term delay in the euro adoption. The Estonian economy is based on strong fundamentals and reasonable economic policy. Neither has the market behavior indicated any concerns about a short delay. Thus, it is recognized that although Estonia does not fulfill the inflation criterion, this does not arise from any potential weaknesses in our economy or economic policy. However, a longer delay in the euro adoption might be problematic. The risks concerning the willingness to channel foreign savings into the Estonian economy in similar amounts increase. Authorities remain vigilant in this regard.

### **Practical preparations**

Apart from inflation, Estonia is economically and technically ready for the changeover: the National Changeover Plan has been drafted and approved, amendments to laws have been made, and enterprises and the general public are already being gradually informed about the euro related issues (see [www.euro.eesti.ee](http://www.euro.eesti.ee) ). This is also the reason why we consider the so-called big bang scenario (i.e. no transition periods for settlements, accounting, or other reasons) and a minimum parallel circulation period for two currencies as sufficient.

Considering the future of the central bank, no major changes will happen after the euro area accession. Eesti Pank will continue to perform the same tasks as today: we will handle cash distribution (together with the ECB, of course), manage payments systems, make



economic analyses, collect statistics, etc. Our international role will increase, as we will start to participate in the euro area monetary policy decision-making. I would also like to dispel a myth that has been propagated by some Estonian politicians. Namely, no money will be "freed" from the balance sheet of the central bank for other purposes. In the euro area, the same general accounting principle applies: assets must cover liabilities. As kroon cash will be replaced by euro cash and liabilities to credit institutions will remain on our balance sheet, we will need reserve assets to cover them. Perhaps the biggest change will be a mental one: our presently euro-denominated assets will no longer be foreign assets, but will become domestic assets.

### **Concluding remarks**

There are several reasons why Estonia has done so well during the last ten years. The importance of the institutional framework and the clear goal of integration with the EU and the euro area should not be underestimated. We have opened up various economic sectors to foreign investment, including the financial sector, and through that, we have been able to create strong competition and productivity growth in most sectors. Adding effective and flexible labor markets, we have established a good framework for preparing ourselves for the full membership in the euro area.

It is important to stress that until we have actually qualified for the full membership of the Economic and Monetary Union, Estonia continues to follow sound economic policy-making rules.

# FINANCIAL SERVICES ENVIRONMENT DEVELOPMENTS IN ESTONIA

**Mart Sõrg**

*University of Tartu*

## **Introduction**

Introduction of the market economy in transition countries takes place simultaneously with structural and legal reforms. Reforms of banking and financial systems and the creation of workable financial markets are among the biggest institutional changes of these states.

Financial sector reforms for transition countries are not an easy task for high speed of changes and for effects of economic and financial crises in this period. Therefore the risk management experience of the staff of banks is short and the banking regulations are in a forming stage.

Reforms in Estonia banking sector started in 1988, three years before restoring the political independence in August 1991.

The first period of development of new banking can be named as a "wild" banking period and ended with first banking crisis. Crisis started in autumn 1992 and decreased the number of operating banks twice. The second period can be called as a "naïve-optimistic" banking period and was interrupted by second banking crisis in 1998. It led to the mergers of certain banks, the coming of foreign banks into Estonia as the strategic investors for Estonian banks and the bankruptcy of three banks. After this crisis in Estonia operated only 5 banks and one branch office of a foreign bank and the market share of the biggest bank was over 50% by assets. After second crisis started the "modern" banking period in Estonia.

The main roots of the first crisis came from the deep crisis of the whole economy, poor bank management and weak supervision from the side of central bank. Reasons of the second banking crisis were pitfall in Tallinn Stock Exchange in autumn 1997 and financial crisis in Estonian important trade partner Russia in autumn 1998. The most

notable similarity of both crises was that the banks with poor risk management and control levels suffered in harder troubles.

Banking crises initiated Bank of Estonia to improve the banking regulation and supervision. Estonian Parliament (Riigikogu) passed several new acts concerning the financial sector. Credit Institutions acts were passed in 1994 and in 1999. Since January 2002 financial sector supervision establishments are merged in to one Financial Supervision Authority.

In our study we do not deal only with the success of the reforms of a banking sector from the aspect of the growth of assets but we also pay a lot of attention to the changes in quality. We research the extent of the growth of the banks' creditability, the stability of their working results, the conformity of services to clients' needs, the harmonization of banking regulations with the European Union's requirements and the implementation of good banking practices.

Our research of banking reconstruction in Estonia shows that the legal environment of banking business reached quickly to the Western standard and major banks have achieved the level of developed countries banks' trustworthiness, novelty of products and standards. But the disadvantage of such rapid development is the extremely high concentration in banking that may decrease the level of competition, which is essential for ensuring stable development and stability of services and prices in the banking market.

### **"Wild" banking period 1988–1992**

In connection with the separation from the economic room of the USSR and transition from a socialist command economy to a capitalist market economy the deep economic crises started both in Estonia and in other Baltic states. That was an extremely comprehensive period of economic reconstructions when the production output was reducing dramatically for several years and the countries passed a hyperinflation period. In several years the volumes of gross output lessened over 10%. Naturally we cannot talk about normal management of credit, interest rate and exchange rate risks in these conditions.

The situation can be observed in comparison with the banking crisis in the Nordic countries. Though only Finland and Sweden



passed a GDP decrease, all the Nordic banks suffered big loan losses during the period of economic stagnation in 1991–1993.

Hansson and Tombak (1996) find that the major reasons for the Baltic banking crises were: unexpected changes in the macro-economic environment; inadequate enforcement of existing prudential regulations; abuse by “insiders” and reckless expansion of assets for credits.

Another substantial reason of the weakness of the banking systems in Estonia and other Baltic states was an extremely limited capacity of resources in that sector. The Bank of Estonia can be blamed here for issuing banking licences too easily, determining too low demands on equity capital requirements and tolerating the low level of professional skills of the bank managers, but Estonia did not have other alternatives and the critics cannot find them either. Yet it was Estonia’s aim in this period (since 1987) to gain economic independence. In order to achieve the goal Estonia had to establish banking system, based on national private capital, to counterbalance the all-Union state owned banking system, governed by Moscow. Of course during that period the human and financial capital resources outside the all-Union banking system were limited. Therefore every initiative and capital investment in a banking sector was welcomed. It can be also added that the wages of this period did not allow hiring educated staff from abroad, nor even thinking about it.

On December 28, 1989 the Supreme Council passed the Banking Law. The Banking Law defined the functions of commercial and cooperative banks, the principles of bank operations, the role of the Bank of Estonia, and the rules governing property collateral and creditors protection. Minimum share capital requirement for commercial banks was 5 mln. roubles and for cooperative banks 2 mln. roubles.

Specifically, the law specified capital-asset ratios for commercial and cooperative banks at 1:20 and 1:12 respectively. Household deposits could not exceed 100 percent of capital for commercial banks or 50 percent for cooperative banks. The ratio of liquid assets to short-term liabilities must exceed 30 percent for banks providing cashier services or 15 percent for other banks. The ratio of long-term assets to capital plus long-term liabilities (over 12 months) could not exceed 100 percent. The law did not request provisions against

doubtful loans and did not define clearly the rules on disclosure of financial information for bank supervisions (Estonia, 1993).

Hyperinflation had reduced the real value of the obligatory initial capital of the banks several times. Now those businessmen, who had made money with brokerage business and illegal transferring of government property, had a possibility to establish their own banks to pump supplementary resources into their business through their banks. In Estonia a boom in establishing banks was observed in the first half of 1992 when 21 new commercial banks were issued a license. Before the currency reform, the number of banks was the biggest, but at the end of 1992 the total number of commercial banks was 42. However, the banks were relatively small. The banks were also small with respect to the number of shareholders: 11 banks had less than 10 shareholders and among the others there were two banks, which had only one shareholder.

The Bank of Estonia was re-established in January 1990. During the first years of operation it developed its staff, created the normative basis for performance of banking system and established itself as a central bank. The Branch of the Soviet Union State Bank (central bank) practically stopped the supervision of the banks in the territory of Estonia in 1988. But in order to strengthen its position in the initial years the Bank of Estonia sooner allowed the commercial banks to do things prohibited by Moscow, than tried to reprimand them. For that reason a banking system created itself without the normal advice and supervision by the central bank.

In addition to the inability of the central bank to administer the banking system efficiently, the weakness of the central bank was assisted by the lack of Estonian own currency and extremely low trust in the inflationary rouble. Therefore the banks dealt with traditional banking operations modestly and were more interested in the business promising a good profit. Table 1 shows that before the currency reform in June 1992) the loan interest income of the commercial banks was only 5,3% of total returns.

**Table 1.** Returns and Expenditures of Estonian Commercial Banks in 1992

	1 <sup>st</sup> half-year	2 <sup>nd</sup> half-year	Total
<b>Returns, million EEK</b>	605	887	1492
<b>of which in %</b>			
income from floating exchange rates	76,1	24,5	45,4
income from foreign currency transactions (charge)	15,2	29,3	23,6
income from interests on loans	5,3	48,7	30,4
other income	3,4	-2,5	0,6
<b>Expenditures, million EEK</b>	572	827	1399
<b>of which in %</b>			
losses due floating exchange rates	80,6	29,2	50,2
administrative expenses	3,3	17,7	11,8
expenses of foreign currency transactions	2,9	28,1	17,8
interest paid on deposits	1,9	9,0	6,1
other operating expenses	11,3	16,0	14,1
<b>Profit, million EEK</b>	33	60	93

Source: Sõrg, 1995.

Table 1 may also show light upon another cause of the banking crisis. Within the period of the 2nd half-year in 1992, just after the currency reform in Estonia, the share of interest returns in gross income of commercial banks grew 9 times, and opportunities to earn profit due to the currency exchange had reduced significantly. Some of the commercial banks were not able to survive the shock caused by the drastic change in the structure of earnings. It is one of the reasons why in Estonia the first banking crisis started in autumn 1992, whereas in Latvia and Lithuania that carried out their currency reforms later and stage-by-stage, the crises began later.

Consequently it can be stated that the banking crises in the Baltics were imminent, because the reorganization of banking coincided with the time of reorganisations in monetary and economic systems, i.e. it happened in the circumstances of deep economic recession and hyperinflation. In corresponding situations, with essentially smaller setbacks, even the banking systems of developed countries, that know and follow banking principles, have not been able to avoid crises.



In order to limit the amount of cash in circulation, the Board of the Bank of Estonia established reserve requirements for commercial banks from the start of the currency reform. This ratio was to gradually grow from the initially effective 10% to 15% by December 1, 1992. The currency reform committee had with its decree of June 17, 1992 invalidated from July 1 all bank operating licences and allowed the Bank of Estonia to extend the operating the old operating licences of commercial banks until January 1, 1993. This allowed the Bank of Estonia to nullify the right to operate of all banks, who had not actually started operation and forced the others to bring their operation into line with the new requirements.

As a result of the Estonian banking crisis in 1992–1994 the number of commercial banks in Estonia lessened more than twice due to the bankruptcies and mergers. The pressure of the crisis effected heavier on the large commercial banks more than small banks. Thus the crisis had much in common with the banking crises in the Nordic countries. Prof. John Skår (1995) claims that the bank crisis in Norway eventually turned out to be a crisis of the large banks. Anders Kjellmann reaches the same conclusions in a research on bank crisis in Finland (1994). The support of the Bank of Estonia and the government did not save all the large banks, not to mention small ones. After the first banking crisis, the share of state owned banks in Estonia once again increased significantly.

The characteristic feature of the first banking crisis in Estonia was the matter that it was caused by internal reasons and it was to be overcome with Estonia's own resources and management skills. As there was the lack of resources and abilities, the depositors' losses in the banking crisis were significant. Money supply decreased, loans were appreciated and the trustworthiness of the banking system and reform policy fell down generally.

15 August 1994. The bank of Estonia imposed moratorium on Eesti Sotsiaalpank, which from the beginning of 1993 until the spring of 1994 had been holding the position of Estonia's largest bank. With the help of central bank's liquidity aid and crisis programme, the bank restored operations in a month but in May 1995 the central bank was still forced to revoke the bank's licence. The collapse of Sotsiaalpank gave the Bank of Estonia a fresh impetus to improve banking supervision and prudential ratios.

The case of Sotsiaalpank had a major impact on the Credit Institutions Act that took effect at the beginning of 1995 and was being prepared to be sent to Riigikogu during the crisis, and also on prudential ratios.

Some analysts even reproached the authors of the Act that they had based it on a single case. To some extent also Raimund Hagelberg who was closely related to drafting the Act admits it: "Since the preparations and the birth of the Act greatly overlapped with significant events in putting banking into order and occurred at the time when the problems arising from the activities of Tartu Kommertspank, Sotsiaalpank and others were being handled, it was oriented towards more extensive strictness in setting requirements for the activities of banks (Zirnask, 2002).

As to prudential ratios, the principle changes concerned credit risk ratios that the Bank of Estonia supplemented as soon as two weeks after proclaiming the moratorium on Sotsiaalpank:

- 1) the regulation under which the total of big loans, ie accounting for more than ten per cent of the bank's equity capital, could not exceed the equity capital by more than eight times (ie the total of big loans/equity capital < 800%) remained unchanged);
- 2) the regulation under which the total of loans, guarantees, letters of guarantee, etc issued to one client could not exceed 50 per cent of the bank's equity capital (ie the total indebtedness of one customer/equity capital < 50%) was changed; under the new regulation the total debt obligation of one customer or related customers could not exceed 25 per cent of the equity capital of the credit institution;
- 3) a regulation was added under which subordinate institutions of a credit institution, the parent company of a credit institution and other subordinate units of the parent company were not allowed to have debt liabilities to the credit institution related to them through ownership totalling more than the sum that corresponds to 20 per cent of the equity capital of such a credit institution;
- 4) a regulation was added under which management members of a credit institution, other employees, credit institution shareholders representing five per cent or more of the paid-in capital or votes, also companies related to them cannot have debt liabilities to that credit institution in a sum that equals 20 per cent of the equity capital of the credit institution.

Briefly – commercial banks could not grant big loans to their staff and owners any more. Also the possibility to grant big loans to persons not directly related to the bank decreased (Zirnask, 2002).

### **“Naive-optimistic” banking period 1993–1998**

In April 1993, the Bank of Estonia, scared by the striking banking crisis, announced a stabilisation period in banking, during what the issuance of new banking licences was frozen and for the existing banks, which held the licences, the central bank established a schedule of gradual rise in the minimum share capital up to ECU 5 mln. As far as issuing licences was concerned the period of stabilisation lasted much longer a new licence was issued only on 23 September 1999 to Preatoni Pank.

The schedule of raising share capital left the small commercial banks some hope to survive, but due to the crash of the Social Bank of Estonia in 1994, which was the biggest bank in the state, the Board of the Bank of Estonia hardened the prudential ratios for banks on Sept, 2 1994 and passed extra demand on equity capital (Table 2).

**Table 2.** Minimum capital requirements for Estonian commercial banks (mln. kroons)

Year	Minimum share capital		Minimum equity capital <sup>2</sup>
	for operating banks <sup>1</sup>	for granding licence	
1994	6	15	–
1995	15	25	–
1996	25	35	50
1997	35	35	60
1998	35	35	75

<sup>1</sup> As for April 1th

<sup>2</sup> As for January 1th

Source: Board of Eesti Pank decisions

Thus, by January 1, 1996 the equity capital of a bank, whose share was EEK 15 mln, had to be EEK 50 mln. The demands on the growth of equity capital forced the small banks to merge at the end of 1995 and at the beginning of 1996.



The above-mentioned activities of the Bank of Estonia in following the advice of foreign experts have been criticised several times. So Vello Vensel, the Professor of statistics of the Tallinn University of Technology, has written: "Forcing the consolidation of the banking sector by increasing gradually the demands on equity capital into the level of EU can be regarded as a false solution by the Bank of Estonia ...The continuous raising of demands on capital caused that small banks lost the ground under their feet, their main task was to provide additional capital by all means, ignoring the related risks. The normal smooth development was retarded; otherwise it would have forced ineffective small banks to leave the market themselves." (Vensel, 1998).

The central bank and government tried to support mergers financially. For instance, when the Industrial Bank of Estonia, not sufficiently capable of development, merged with the Estonian Savings Bank the Bank of Estonia guaranteed the bad loans in EEK 90,6 mln. and sold the shareholders of the Industrial Bank its shares in the Savings Bank (1 mln. shares) at a nominal price, i.e. three times lower than a market price. At the beginning of 1997 when the Union Bank of Estonia merged with the North Estonian Bank, whose shareholders were the government and the Bank of Estonia, they wrote off their share capital and gave the Union Bank a guaranty on the scale of all the doubtful loans of the North Estonian Bank loan portfolio. The Land Bank of Estonia, which was established by the merger of four banks at the beginning of 1996 and suffered a setback as a result, was helped by the state-owned Fund, created for crediting agriculture and rural life in Estonia, that put EEK 25 mln into the share capital of the Land Bank (ca 10% of the Fund).

Bank mergers gave a great push to the rise in assets of the banking sector. Table 4 shows that since 1994 the rise has increased in progressive rate. In 1997 the growth was even 76,8%, and in previous three years the indicator was ca 50% a year. Due to such a rapid growth the Estonian banks became the biggest banks by assets in the Baltics.

**Table 3.** The growth of assets of the commercial banks in Estonia, 1994–1998

Year	Number of banks	Bank assets		Assets per bank	
		bln EEK	growth %	mln. EEK	growth %
1994	24	10.067	57.8	419	44.8
1995	18	14.857	47.6	825	196.9
1996	13	21.902	47.4	1685	204.2
1997	11	38.755	76.9	3523	209.1
1998	6	40.004	5.8	6832	193.9

*Source:* Bank of Estonia data; completed by author.

At the beginning of 1996 banks had accumulated a great part of national financial resources. Besides they had a key position in privatizing the state-owned property, because the Privatization Agency required from those, who had made an application for privatizing, the existence of bank guarantees in addition to a business plan. Thus there was a solid basis for growth in the ambitions of the executive boards and owners of banks to convert their real power in Estonia into profits and expand their impact into neighbouring regions.

The result of the development of the whole economic situation and the management quality of banks is that the profitability of banks was high. In 1997 the ROE was 34,9%. It tempts the top executives of some banks to get rid of the owners who share a part of profit. The managerial staff of the Estonian Investment Bank was successful in doing so (profit per employee was very high – over EEK 1 mln). In autumn, 1997 when the shareholders of the Investment Bank intended to sell the bank to the German Schleswig-Holstein Landesbank, the top executives threatened to hand in a collective resignation and so the bank was sold to them for EEK 310 mln, though there was a hope to get more from foreign investors (up to EEK 500 mln). The top executives borrowed the necessary money from the Union Bank of Estonia. The top executives of the Tallinn Bank, who forced to leave G. Sammelselg, the chairman of the supervision board and the major shareholder in the mentioned bank, used the same scheme. They received money from the Estonian Investment Bank to acquire the share of G. Sammelselg in the Tallinn Bank and his post in the supervision board as well.

The aforesaid examples refer to the big possibility of the management's buy out in the Estonian banks due to the weakness of the owners' control. Here comes the conclusion that the top management of a bank can take high risks. When the risks do not justify themselves, the owners are those who lose their money. But if the risks justify themselves, there can be a situation when the owners are displaced.

Another direction of the commercial banks is to absorb into non-banking business. For instance, at the end of 1997 the Land Bank of Estonia, whose share capital had to be recruited by the Estonian Rural Credit Fund, owned seven subordinate establishments and related companies, which dealt with leasing and investing, and with anything else but banking: hotels, processing agricultural products, broadcasting etc. Several credit institutions hold quite a long list of subordinate establishments (over 50% of a share capital) and related companies (20–50% of a share capital). For instance, the Union Bank of Estonia mentions 11 subordinate establishments and 18 related companies in its report on October 1, 1997. In many countries in continental Europe, control and finance are institution-based; banks and other financial institutions are major shareholders in nonfinancial corporations and perform an active role in supervising and managing them (Pradhan 1995). It appears that Estonia is not exceptional.

The third direction for the Estonian banks to realize their power is to expand to the eastern market, where the interest rates and possible profitability are high. Besides buying the banks in the East, the Estonian banks make powerfully their way into the securities markets of that region. The first boom of establishing independent investment funds in Estonia burst in 1994–1995. The crashes in 1995 did not bring people to the streets, as it happened in Albania, but lessened the popularity of these institutions. Now the banks took the reins and established their own investment funds. At the end of 1997 the total assets of the investment funds managed by credit institutions was 94% of the whole market. Besides, more than EEK 2 bln. of the amount of the securities private portfolios belong to the subsidiary companies.

The year 1997 was of great importance for the development of investment funds. The rapid rise in prices in the local securities market and the expanding of the local funds into East increased their



assets by the end of 1997 ca four times comparing to the end of the year 1996.

As the banks took high financial risks through investment companies and their subsidiary companies to get a big profit, then at the end of 1997 the fall in prices on share markets reduced essentially the profit of the banks. And during some period at the end of 1997 and in 1998 several banks operated in losses. The consolidated profit and loss report in 1997 shows that comparing with the previous year the profit grew about 90% but it would have grown double if the profit from financial investments had not decreased by ca EEK 50 mln. (Table 4). As for other profits and losses, the part of losses has grown essentially in comparison with the previous year, foremost due to the decrease in the immaterial assets value and losses from off-balance liabilities.

**Table 4.** Estonian commercial banks' profit account (mln. EEK)

	1996	1997	1998
Interest income	1722,9	2658,5	3085,3
Interest expense	697,0	1217,2	1693,9
Net interest profit	1026,0	1441,3	1391,4
Income from financial investments	166,4	117,2	21,3
Commission income	449,4	799,1	699,3
Commission expense	132,7	250,8	227,7
Net profit on financial operations	371,4	715,1	-235,1
Administrative expenses	1027,1	1244,0	1069,0
Net other income and expenses	-289,3	-509,0	-1309,3
Profit before taxation	564,1	1068,9	-501,4
Income tax expenses	50,2	104,6	-2,9
Profit on reporting period	513,9	963,1	-498,5

*Source:* Bank of Estonia; completed by author.

But in 1998 the banking sector of Estonia ended a fiscal year in a loss of 0,5 bln. kroons. And again the reasons are not hidden in traditional bank services (depositing, lending, and transactions) but in new and risky financing business. Therefore the following opinion, given by Prof. Risto Tainio (1995) in connection with the banking crisis in Finland, will be suitable for Estonia: "In general, the banks responded to the banking crisis by going back to basics, returning from new

businesses to old alternatives, rationalizing operations and cutting costs.”

The main reasons of the banking crisis in 1998–1999 were excessive financial risks taken by the banks primarily on the stock exchange. The burst of a market bubble on the Tallinn Stock Exchange, caused by the impact of the financial crisis in the East Asia, started a chain of negative results:

- a) banks were not able to realize their stock issues to the estimated extent and prices;
- b) stock portfolios, whose profitability had been raised by financial leverage, began to produce losses;
- c) liquidity of banks was decreasing as the short-time resources, borrowed from the Western market, had been given out as long-time loans, and it became more and more difficult and expensive to provide new resources from abroad;
- d) the lop-sided expansion of banks towards the East (especially after the burst of financial wreck in Russia) raised credit risks and produced losses through subsidiaries;
- e) depositors lost trust in banks and began to withdraw their money from banks. The polls showed that in the opinion of 25% of the questioned people the reliability of banks had declined, and in this group 34% of the people had stopped saving at all and 28% were keeping their savings only at home (EKI test 1998, 1999).

Consequently some of the reasons of the banking crisis in 1998–1999 were similar to those of the first crisis, i.e. management faults, consisting of underestimation of risks and excessive optimism concerning the developments of market. The new key reasons were the influencers from international markets:

- a) international stock market crisis;
- b) financial crisis in Russia;
- c) appreciation of loan resources in international markets and hard terms.

When in autumn 1997 the economic environment changed, then the excessive expansion of securities and loan portfolios, lop-sided orientation towards the Russian market, lending short-time cheap foreign resources as long-time credits, and the other same type mistakes began to generate losses to the extent of previous big profit.

The leaders of the Savings Bank of Estonia and Tallinn Bank realized to offer their banks for mergers with stronger banks almost at the last moment. But the Land Bank of Estonia, Estonian Forekspank, Estonian Investment Bank, EVEA Bank and ERA-Bank did not feel the real dangers and they were too late. The Investment Bank and Forekspank were saved by the support of the central bank, but the rest will be probably added to the list of the failed banks in Estonia.

The essential difference of the banking crisis in 1998–1999 from the previous one was the fact that the Swedish banks SE Banken and Swedbank were involved in saving the two major banks of Estonia, the Hansabank and the Union Bank of Estonia. Those banks had just merged with weaker banks and now their share in the banking market of Estonia was res. 50% and 30%. They had also been evaluated by international rating agencies. As they were not able to carry on business independently any longer, the owners and managers had to look for strategic investors. The troubles had lowered the price, so the international banking found it the right time to come to help. The small banks of Estonia also looked desperately for partners, but as their market share was small and they did not own international ratings, they were not able to draw international interest.

Conclusively it can be said that the main difference between the banking crises in Estonia was the fact that the first crisis was a local occasion but the second crisis was of international nature, where the impelling forces came from outside and the normal situation was restored also by foreign support.

The indirect reason of the second banking crisis was the rapid growth of bank assets, caused by several factors, which weakened the banks. Obviously in other transition countries the essentially faster growth in banking sectors comparing with real sectors has weakened banking sectors and made them more vulnerable. Mikhail Dmitriyev (1998) describes the development of a banking sector in Russia as follows: "The peculiar nature of the current Russian banking system has been linked inseparably with the very rapid growth of banks that took place during 1987–1995." Probably one of the roots of the deep banking crisis in Russia in 1998 lies also in the rapid growth of banks in previous years.



## **Modern banking since 1999**

Estonian banks have by now learnt the lessons of two crises. These crises filtered out the banks with worse risk management systems and only the best survived. The crises taught both big and small banks that it is not secure to rely on help from the central bank. The small banks also learnt that even foreign investors aren't interested in their fate.

The mergers of banks and bankrupts enabled the banks' employees to see the sad consequences of underestimating risks and the bank owners and the management, to leave only the most professional on the payroll. Therefore, it can be said that Estonian banks' personnel is now sufficiently professional to act in case of future financial shocks.

The central bank of Estonia has been much criticized for the untimely recognition of the last banking crisis and late and inadequate measures. This lesson has been learnt.

The reporting and prudential ratios that took effect in the second half of 1999 differ substantially to the ratios valid in 1993. Besides considering credit risks, complicated calculations for taking into account the off-balance-sheet liabilities, securities portfolios and other risks of commercial banks were added. Also the new Credit Institution Act amended and supplemented the chapters on guaranteeing the reliability of credit institutions and protection of customer interests, accounting, reporting, and supervision. If the cooperative capital of a bank shall be at least EUR 1 million in Finland (Koskenkylä, 2003) then for Estonian cooperative banks shall be EUR 5 million. Reserve requirement for commercial banks is 15% what is much higher than in any new EU country (in EU 2%).

One that kind of result is the unification of financial supervision institutions (banking, insurance, securities market). The leading banks also have their foreign strategic owners who supervise proper functioning of risk management systems in Estonian banks. All this allows to claim that there is no danger of a banking crisis due to factors internal to Estonia. Also, the ability of Estonian banking sector to resist foreign shocks is significantly better than in 1997–1998. Therefore, the likelihood of a banking crisis in Estonia due to external factors is also quite small.



In 2002, the Financial Supervision Authority (FSA) was set up at Eesti Pank as an independent agency for supervising the entire financial sector. As a result, the central bank is no longer directly involved in the supervision of credit institutions, but focuses on ensuring systems financial stability. At the same time this means that the central bank has to cooperate with the FSA in analysing the financial sector and making policy decisions.

The Financial Supervision Authority (FSA) rights and duties are regulated by the FSA Act and detailed in ten other acts governing the operations of financial sector enterprises (Table 5).

**Table 5.** Laws on which the activities of the Financial Supervision Authority are based

<b>Title of Act</b>	<b>Effective (since)</b>
Financial Supervision Authority Act	June 1, 2001
Credit Institutions Act	July 1, 1999
Insurance Activities Act	August 1, 2000
Insurance Act <sup>1</sup>	January 1, 1993
Motor Third Party Liability Insurance Act	June 1, 2001
Investment Funds Act	May 19, 1997
Funded Pensions Act	October 1, 2001
Securities Market Act	January 1, 2002
Estonian Central Register for Securities Act	January 1, 2001
Deposit Guarantee fund Act <sup>2</sup>	May 23, 1998
Guarantee Fund Act	July 1, 2002
Money Laundering Prevention Act	July 1, 1999

<sup>1</sup> Repealed on 1 July 2002

<sup>2</sup> Repealed on 1 July 2002

Source: Estonian Financial Supervision Authority, 2002.

On the basis of an analysis of the transparency for the central banks a hypothesis has been formulated that the central banks which do not supervise the banking system pursue a more open information policy as regards the financial system stability than those involved in the supervision. The average value of the index for the central banks performing supervisory functions is 3.6 points, whereas the corresponding value for the central banks not involved in supervision is 5.7 points. A statistical analysis confirms the existence of a relation between the supervisory functions of the bank and the value of the

transparency index (Sotomska-Krzysztofik and Szczepanska, 2006). This analysis showed that Estonian bank clients get now more open information about financial system stability than before establishing FSA.

**Table 6.** Growth indicators of commercial banks in Estonia 1998–2005

Year	Total assets by the end of the year, bill. EEK*	GDP (current prices, bill. EEK)	Banks assets, % of GDP
1998	41.0	78.0	52.6
1999	47.1	81.8	57.5
2000	57.8	95.5	60.5
2001	68.4	108.2	63.2
2002	81.7	121.4	67.3
2003	98.6	132.9	74.2
2004	133.6	146.7	91.1
2005	185.1	173.1	106.9

\* incl. branches of foreign banks

Source: Bank of Estonia.

After second banking crisis in Estonia started rapid growth of assets (Table 6). At the beginning of this year the sum of assets of banks is over one hundred billion kroons. This growth strengthened the profitability and efficiency of the banking sector. Regardless of fast growth, capitalisation has remained strong, being supported by consistently good profitability.

Entry into market by banking market participants from the Nordic countries has characterised Estonian banking from the mid-1990s. This is accompanied by cross-border integration which shows in a relatively great dependency of liquidity and risk management on the Nordic parent banks. In 2005, Swedbank obtained 100% of Hansapank's shares through the takeover bid. Consequently, 99% of the banks in Estonia belong to Nordic banking groups today. The future development of the Estonian banking market is affected by the operations and objectives of foreign banking groups. This is an important prerequisite for the implementation of the financial policy. On the other hand, increasing integration is definitely positive for financing economy (Eesti Pank Annual Report 2005, 2006).

Competition on the Estonian banking market tightened further after joining Estonia to the EU. The last half-year saw the addition of

new branches of foreign credit institutions that commenced operations in Estonia as well as credit institutions expressing their desire to provide cross-border service from their country of origin. As at 31 March 2006, seven companies licensed as credit institutions in Estonia and branches of seven credit institutions licensed in another European Union Member State were operating in Estonia. Five foreign credit institutions had representative offices in Estonia and 97 foreign credit institutions had submitted an application for providing cross-border services (Financial Stability Review, 2006).

In light of rapid growth, the quality indicators of loan portfolios have remained on an aggregate basis good also in case of banking groups. By the end of the first quarter of 2006, the ratio of the stock of provisions for loan losses decreased to 0.7% of the loan portfolio, whereas the share of loans overdue for more than 60 days declined as well (to 0.4%). Consequently, at the end of the first quarter the aggregate stock of provisions made by banking groups exceeded the volume of loans overdue for more than 60 days by more than 1.7 times.

Although indicators vary across banks as well as banking groups, the provisioning practices of Estonian banks may generally be considered rather conservative in comparison with the rest of Europe. According to the European central Bank, the EU-25 average of non-performing and doubtful assets comprised 2.7% of banks' loans an advance in 2004, while the average ratio of the stock of provisions amounted only to 2.0% in Estonia in the first quarter of 2006 (Financial Stability Review, 2006).

The quality indicators of the Estonian banking sector may be considered relatively good (Table 7). Owing to the strong growth of net interest income net interest margin degreased minimally. Similarly to the banking sectors solo indicators, the figures of the return of assets and asset utilisation of banking groups also continued decreasing in 2005.



**Table 7.** Estonian banks' profitability indicators (%)

	2002		2003		2004		2005	
	Solo basis	Banking groups	Solo basis	Banking groups	Solo basis	Banking groups	Solo basis	Banking groups
Asset utilisation	9,3	...	7,9	...	7,4	...	6,7	...
Return on assets	1,55	2,12	1,70	2,07	2,13	2,22	1,96	2,08
Profit margin	16,8	...	21,7	...	28,8	...	29,4	...
Return on equity	14,7	20,3	14,1	20,0	20,0	22,8	21,0	23,5
Cost-income ratio	61,6	60,9	53,0	52,3	45,8	49,7	45,6	46,6
Net interest margin	3,59	4,55	2,91	3,94	2,39	3,42	2,04	2,89
Spread	3,44	4,41	2,78	3,80	2,30	3,28	1,95	2,76

Source: Financial Stability Review, 2006.

Despite the high quality of the loan portfolio of Estonian banks the most significant amendment in the banking regulation in 2005 was the increase of the risk weighting of housing loans from 50% to 100% in calculating capital adequacy. Consequently, banks need to increase the share of own funds (i.e. financing by owners) in housing loan activities. Given the impact of the close cross-border relations of the Estonian banking system on the domestic loan market, a proposal was made to institutions that supervise foreign banks with branches in Estonia and relevant central banks in other countries to consider the application of 100% risk weighting in regard to housing loans issued to Estonian residents.

Another amendment related to updating was the exclusion of the exchange rate mechanism ERM II currencies from the prudential ratios that establish limitations to foreign currency open positions. For currency risk Estonia has double regulations: first, the prudential ratios which set limitations to foreign currency open positions, and second, the requirement for additional own funds, which depends on the size of the open currency position, included in the capital adequacy calculation. As the two regulations imply different calculation on consolidated basis, some distortions in the currency risk calculation occurred for large banking groups. Since the problems mainly concerned the national currencies participating in ERM II for which the currency risk is limited by an agree fluctuation band, it was



decided to exclude them from the prudential ratio calculation setting the limitation.

Very rapid credit growth is signalling that Estonia may face a serious risk of economic overheating, which may be accompanied by a future pick-up in inflation and a steep slowdown in economic growth. To prevent the risk of overheating Eesti Pank increased the reserve requirement for commercial banks from 13% to 15% from 1 September 2006. The aim of this measure is to curb the risks to Estonia's economy caused by the rapid growth of domestic demand of loans. So the reserve requirement in Estonia is the highest in EU where the minimum reserve is 2% from the assets. Raising the reserve requirement to 15% means banks have to put aside a total of 3,6 billion kroons (230 mln €) to their resources, which helps reduce the amount of money lent out ([www.eestipank.info/pub](http://www.eestipank.info/pub)). So we may conclude that the banking sector reform in Estonia is finished. This is also the opinion of EBRD (Appendix 1) who calculated, that in 2004 it happened. So Estonia is among four transition countries (also Croatia, Czech Republic and Hungary), who already succeeded fully to end the banking sector reconstruction.

## Conclusions

Estonian commercial banks were established 12–15 years ago. 6 banks and one foreign bank branch office has remained from these more than 50 licensed banks, the rest had not been able to continue in the conditions of economic crises independently or have failed. Taking too high risks has also played a role in this process. After joining the EU started the new wave of bank establishment in Estonia.

The analysis of the development of commercial banking in Estonia points out several features, which are typical of the starting period of commercial banking in transition countries.

*First.* The assets of the banks grow much faster than GDP. The main reasons are the high inflation rate and the expanding development strategy of banks. The number of operating banks is decreasing constantly; therefore the growth rates of the assets of major banks are significantly higher than that of the average.

A rapidly growing bank requires the development of a management system, and the new products and services need the existence of relevant risk management systems. But the development of these systems cannot keep pace with the needs. Hence the imminence of bank failures and the strong probability of a banking system crisis in a transition economy leading to a high banking concentration and on the other hand high risks for depositors.

*Secondly:* banking crisis initiated the central bank to improve the banking regulation and supervision. It became even more tight than in developed banking markets. The legal environment of banking business reached quickly to the western standard and major banks have achieved the level of developed countries.

*Third.* Banking sector on a transition country is opened to the invasion of foreign banks due to the openness of the economy and taken excessive risks. After banking crises the major commercial banks go over to the ownership of foreign banks. Local shareholders hold only banks that have a marginal share in the market.

*Fourth.* A transition economy selects quickly in quite a rough way the very limited number of prosperous banks and displaces a great bulk of weaker banks from the markets, which remained in the major banks' way and were not ready to take sufficiently high risks or were unsuccessful in their risk management. Only the top ambitious business plans can be successfully realized and these banks are now modern and competitive on international level. In experts' opinions Estonia is the most "westernized" country of the three Baltic Republics (Kozimiński and Yip, 2000). It can be experienced also by using the services of Estonian banks.

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**Appendix 1. EBRD rating\* of banking sector reform**

<b>Country</b>	<b>1992</b>	<b>1994</b>	<b>1996</b>	<b>1998</b>	<b>2000</b>	<b>2002</b>	<b>2004</b>	<b>2005</b>
Azerbaijan	1,0	1,0	2,0	2,0	2,0	2,3	2,3	2,3
Belarus	1,0	1,0	1,0	1,0	1,0	1,7	1,7	1,7
Bosnia and Herzegovina	1,0	1,0	1,0	2,3	2,3	2,3	2,7	2,7
Bulgaria	1,7	2,0	2,0	2,7	3,0	3,3	3,7	3,7
Croatia	1,0	2,7	2,7	2,7	3,3	3,7	4,0	4,0
Czech Republic	3,0	3,0	3,0	3,0	3,3	3,7	3,7	4,0
Estonia	2,0	3,0	3,0	3,3	3,7	3,7	4,0	4,0
Serbia and Montenegro	1,0	1,0	1,0	1,0	1,0	2,3	2,3	2,7
FYR Macedonia	1,0	2,0	2,7	2,7	2,7	2,7	2,7	2,7
Georgia	1,0	1,0	2,0	2,3	2,3	2,3	2,7	2,7
Hungary	2,0	3,0	3,0	4,0	4,0	4,0	4,0	4,0
Kazakhstan	1,0	1,0	2,0	2,3	2,3	2,7	3,0	3,0
Kyrgyz Republic	1,0	2,0	2,0	2,7	2,3	2,3	2,3	2,3
Latvia	2,0	3,0	3,0	2,7	3,0	3,7	3,7	3,7
Lithuania	1,0	2,0	3,0	3,0	3,0	3,0	3,3	3,7
Moldova	1,0	2,0	2,0	2,3	2,3	2,3	2,7	3,7
Poland	2,0	3,0	3,0	3,3	3,3	3,3	3,3	3,7
Romania	1,0	2,0	3,0	2,3	2,7	2,7	3,0	3,0
Russia	1,0	1,7	3,0	1,7	1,7	2,0	2,0	2,3
Slovak Republic	2,7	2,7	2,7	2,7	3,0	3,3	3,7	3,7
Slovenia	2,0	3,0	3,0	3,0	3,3	3,3	3,3	3,3
Tajikistan	1,0	1,0	1,0	1,0	1,0	1,7	2,0	2,0
Turkmenistan	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
Ukraine	1,0	1,0	2,0	2,0	2,0	2,0	2,3	2,7
Uzbekistan	1,0	1,0	1,7	1,7	1,7	1,7	1,7	1,7

\* The transition indicators scores from 1 to 4 with a 0,3 decimal points added or subtracted for + and – ratings that were first introduced.

Source: EBRD Transition Report 20025



# PANEL SESSION ARTICLES

## ANALYSIS AND FORECASTING OF DEVELOPMENT OF THE ESTONIAN BANKING

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### Abstract

The main purpose of the paper is testing possibilities of treating a bank as an enterprise that produces services and for which the same laws are valid (at least in Estonia) as for the other enterprises. As Estonia is a small country, the banks here can be considered small or medium-sized but highly profitable enterprises.

Banks and other financial institutions are a unique set of business firms whose assets and liabilities, regulatory restrictions, economic functions and operation make them an important subject of research. Banks' performance monitoring, analysis and control deserve special attention in respect to their operation and performance results from the viewpoint of different audiences, such as investors/owners, regulators, customers, and management.

**Keywords:** *production function, trendlines, harmonious component, regression models, forecasting*

### Theoretical background

As far as we know, nobody has earlier used the existing information about banks to construct production function type econometric models treating banking as a separate sector of economy (Aarma and Vainu, 2003, 2004, 2005).

One can ask what is the production or product of a bank? In our opinion the product of the bank is the amount of the services, the

volume of which can be measured by the total income of the bank, which is the measure of the amount of production.

We selected the total income of the banks ( $y$ ) as the output variable (dependent variable) and used profit earning assets ( $x_1$ ), equity ( $x_2$ ), liabilities ( $x_3$ ) and fixed assets ( $x_4$ ) as factors (independent variables).

The time series were treated as consisting of three components:

$$(1) \quad y(t) = f(t) + h(t) + e_t$$

where  $y(t)$  – the actual time series;

$f(t)$  – the linear trend in the time series;

$h(t)$  – the harmonious component in the time series;

$e_t$  – residuals.

The harmonious component is determined as Fourier's series:

$$(2) \quad h(t) = a_0 + \sum_{j=1}^k (a_j \cos \alpha + b_j \sin \alpha), \quad \alpha = j \frac{t2\pi}{T}$$

Where  $j$  – the number of harmonious components,

$t$  – time,

$T$  – length of the time series (the number of periods).

We chose the power function as the type of the model.

$$(3) \quad y = ax^\alpha z^\beta, \quad \alpha + \beta = 1.$$

To estimate the parameters  $a$  and  $\alpha$  with the method of least squares, it was first necessary to find logarithms of the primary data. Then, according to the rules of analysing time series, we checked the existence of a trend and harmonious component in the time series of the logarithms of the selected parameters.

## ECONOMETRIC MODELS

The following results were obtained:

**Table 1.** The strength of the relationships between the selected variables (correlation matrix)

### Estonian banking system

	y	x <sub>2</sub>	x <sub>3</sub>	x <sub>3</sub>	x <sub>4</sub>
y	1				
xx <sub>1</sub>	0.759241	1			
Xx <sub>2</sub>	0.747643	0.968621	1		
Xx <sub>3</sub>	0.76713	0.990951	0.959944	1	
xx <sub>4</sub>	0.585279	0.620257	0.702202	0.66935	1

### Hansabank

	y	x <sub>1</sub>	x <sub>2</sub>	x <sub>3</sub>	x <sub>4</sub>
y	1				
x <sub>1</sub>	0.924698	1			
x <sub>2</sub>	0.921711	0.994211	1		
x <sub>3</sub>	0.929342	0.999193	0.992265	1	
x <sub>4</sub>	0.683433	0.621776	0.639226	0.646848	1

### SEB Estonian Union Bank

	y	x <sub>1</sub>	x <sub>2</sub>	x <sub>3</sub>	x <sub>4</sub>
y	1				
x <sub>1</sub>	0.9131	1			
x <sub>2</sub>	0.8989	0.9740	1		
x <sub>3</sub>	0.9205	0.9995	0.9739	1	
x <sub>4</sub>	0.9050	0.8882	0.9417	0.8973	1

Source: authors' calculations

### 1. Trendlines

#### *Estonian banking system*

$$\begin{aligned}
 (4) \quad f(t): \quad & \ln y = 6.3032 + 0.0359t \\
 & \ln x_1 = 9.266 + 0.0601t \\
 & \ln x_2 = 7.1509 + 0.0678t \\
 & \ln x_3 = 9.4392 + 0.054t \\
 & \ln x_4 = 7.605 + 0.0179t
 \end{aligned}$$

*Hansabank*

$$\begin{aligned}
 (5) \quad f(t): \quad & \ln y = 5.4304 + 0.0551t \\
 & \ln x_1 = 8.4217 + 0.0819t \\
 & \ln x_2 = 6.5457 + 0.0851t \\
 & \ln x_3 = 8.41 + 0.0779t \\
 & \ln x_4 = 6.3085 + 0.0374t
 \end{aligned}$$

*SEB Estonian Union Bank*

$$\begin{aligned}
 (6) \quad f(t): \quad & \ln y = 4.9676 + 0.0393t \\
 & \ln x_1 = 8.2197 + 0.0597t \\
 & \ln x_2 = 6.1324 + 0.0608t \\
 & \ln x_3 = 8.2951 + 0.0556t \\
 & \ln x_4 = 6.5119 + 0.0240t
 \end{aligned}$$

## 2. Harmonious components

*Estonian banking system*

$$\begin{aligned}
 (7) \quad h(t): \quad & \ln y - f(t) = -0.1178 \cos \alpha + 0.0279 \sin \alpha - \\
 & 0.0785 \cos 3\alpha - 0.1248 \sin 3\alpha \\
 & \ln x_1 - f(t) = -0.1491 \cos \alpha + 0.0733 \sin \alpha - \\
 & 0.0866 \cos 2\alpha - 0.0745 \sin 2\alpha + 0.0586 \cos 3\alpha - \\
 & 0.0734 \sin 3\alpha \\
 & \ln x_2 - f(t) = -0.3301 \cos \alpha + 0.00606 \sin \alpha - \\
 & 0.0646 \cos 2\alpha - 0.161 \sin 2\alpha \\
 & \ln x_3 - f(t) = -0.1355 \cos \alpha + 0.078 \sin \alpha + 0.0713 \cos 3\alpha \\
 & - 0.0795 \sin 3\alpha \\
 & \ln x_4 - f(t) = -0.2705 \cos \alpha - 0.0934 \sin \alpha
 \end{aligned}$$

*Hansabank*

$$\begin{aligned}
 (8) \quad h(t): \quad & \ln y - f(t) = -0.0299 \cos \alpha - 0.0194 \sin \alpha \\
 & \ln x_1 - f(t) = -0.2804 \cos \alpha + 0.0554 \sin \alpha \\
 & \ln x_2 - f(t) = -0.5078 \cos \alpha - 0.0189 \sin \alpha \\
 & \ln x_3 - f(t) = -0.2415 \cos \alpha + 0.0739 \sin \alpha \\
 & \ln x_4 - f(t) = -0.3923 \cos \alpha + 0.1566 \sin \alpha
 \end{aligned}$$



*SEB Estonian Union Bank*

$$\begin{aligned}
 (9) \quad h(t) \quad & \ln y - f(t) = -0.3558 \cos \alpha + 0.1356 \sin \alpha \\
 & \ln x_1 - f(t) = -0.2318 \cos \alpha + 0.1304 \sin \alpha \\
 & \ln x_2 - f(t) = -0.1505 \cos \alpha - 0.1458 \sin \alpha \\
 & \ln x_4 - f(t) = -0.4252 \cos \alpha + 0.0756 \sin \alpha
 \end{aligned}$$

We treated all possible combinations of the factors and obtained the models that proved to be statistically significant:

*Estonian banking system*

$$\begin{aligned}
 (10) \quad y &= 0.1697 x_1^{0.4379} x_2^{0.5621} \exp [0.3686 \cos \alpha - 0.1038 \sin \alpha - \\
 & 0.0022 \cos 2\alpha + 0.1231 \sin 2\alpha + 0.0528 \cos 3\alpha + 0.1569 \sin 3\alpha - \\
 & 0.0285 t] \\
 (11) \quad y &= 0.271 x_2^{0.7998} x_3^{0.2002} \exp [0.1733 \cos \alpha - 0.0362 \sin \alpha + \\
 & 0.0517 \cos 2\alpha + 0.0928 \sin 2\alpha - 0.0928 \cos 3\alpha - 0.1089 \sin 3\alpha \\
 & + 0.0793 t]
 \end{aligned}$$

*Hansabank*

$$\begin{aligned}
 (12) \quad y &= 0.065214 x_1^{0.8612} x_2^{0.1388} \exp [0.1296 \cos \alpha - 0.057 \sin \alpha - \\
 & 0.0272 t] \\
 (13) \quad y &= 0.0850 x_2^{0.2762} x_3^{0.47238} \exp [0.0161 \cos \alpha - 0.0289 \sin \alpha - \\
 & 0.0248 t] \\
 (14) \quad y &= 0.0328 x_2^{0.8520} x_4^{0.12480} \exp [0.1917 \cos \alpha + 0.0123 \sin \alpha - \\
 & 0.03229 t]
 \end{aligned}$$

*SEB Estonian Union Bank*

$$\begin{aligned}
 (15) \quad y &= 0.1211 x_1^{0.4238} x_2^{0.5862} \exp [-0.0117 \cos \alpha - 0.0979 \sin \alpha + \\
 & 0.0638 \cos 2\alpha + 0.0618 \cos 2\alpha - 0.0043 \cos 3\alpha + 0.0606 \sin 3\alpha - \\
 & 0.0216 t] \\
 (16) \quad y &= 0.7195 x_3^{0.7918} x_4^{0.2082} \exp [0.0516 \cos \alpha - 0.4983 \sin \alpha - \\
 & 0.0159 t]
 \end{aligned}$$

The smallest standard error was shown by models (11), (14) and (16). It indicates that in all sets the same factor (independent variable) – equity – is the most significant.

At forecasting the total revenue for the next period we assumed the same trendlines and regularities. The forecast of the total revenue for the Estonian banking system was  $y(44) = 2301.69$  thousand EEK, in fact it was 2412.2 thousand EEK. The forecasted value was by 4,6% lower.

The forecasting of the total revenue for Hansabank gave a considerable mistake: the forecasted value of the total revenue was 1858.08 thousand EEK while the real figure was 1458,5 thousand EEK. In fact there occurred a random deviation (random great jump) from the trend. Extrapolation of the linear trend of the total revenue gave 1714.03 thousand EEK as the amount of the total revenue, which is much closer to the value prognosticated by the production function.

The forecasting of the total revenue for the SEB Estonian Union Bank failed totally.

Of course our time series are very short for such analysis and parameters of functions are very sensitive to changes and random fluctuations (jumps). Still, in our opinion such analysis gives much information.

## Conclusions

1. It is possible to treat banking as an independent sector of the economy of a country.
2. The power type econometric model can be used and is useful for econometric modelling of the development of the banks and the banking system of a country as a whole.
3. Econometric modelling of the main indicators of the economic system of a country as whole or of separate sectors can give important information for practising managers and public policymakers.

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# ESTONIAN BANKING SYSTEM ECONOMETRIC MODELS 1995–2005

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## **Abstract**

The paper is the fifth part of a planned series of papers discussing possibilities of using econometric models for analyzing banking systems as well as for forecasting their development. The first fourth parts of this series were presented at the COPE International Conferences in Mexico City (COPE 2003), Cairo (COPE 2004), Santiago de Chile (COPE 2005) and Beijing (2006)

The main purpose of the paper is testing possibilities of treating a bank as an enterprise that produces services and for which the same laws are valid (at least in Estonia) as for the other enterprises. As Estonia is a small country, the banks here can be considered small or medium-sized but highly profitable enterprises.

Banks and other financial institutions are a unique set of business firms whose assets and liabilities, regulatory restrictions, economic functions and operation make them an important subject of research. Banks' performance monitoring, analysis and control deserve special attention in respect to their operation and performance results from the viewpoint of different audiences, such as investors/owners, regulators, customers, and management.

**Keywords:** *production function, trendlines, harmonious component, regression models, forecasting*



## **Development of the Estonian Banking System**

The first commercial bank (Tartu Commercial Bank) on the territory of the former Soviet Union was established in Estonia in 1988. This bank went bankrupt and was liquidated in 1992–1993. As there was a great demand for banking services by the emerging private sector, the maximum number of commercial banks operating simultaneously in the small Estonian banking market was 42 in 1992. Some of them were liquidated during the banking crises in 1992–1994 and in 1998–1999, and some of them were merged into larger commercial banks.

Up till 1997, the development of the Estonian banking sector was characterized by a rapid nominal growth of total assets and loan portfolios. The year 1997 is also the beginning of a new stage in the development of the Estonian financial sector, especially in international context, which is confirmed by investment grade credit ratings assigned to Estonia.

In 1998, a wave of mergers and restructuring took place in the Estonian banking sector. After the completion of these mergers, Scandinavian banks started to show greater interest in the Estonian banking market. We may say that the Estonian banking sector became healthier when Swedish banks and other Nordic investors joined the circle of bank owners, improving the future outlook of the banking system; for example, by supporting and helping in the case of crises.

Estonia has experienced two serious banking crises during the about 12-year period of its banking sector development and restructuring, the first crisis in 1992–1994 and the second in 1998–1999. The first banking crisis occurred during the hard period of starting drastic economic reconstruction when production was reducing dramatically and the country underwent a period of hyperinflation. A characteristic feature of the first banking crisis in Estonia was that it was caused by internal reasons and it was overcome with Estonia's own resources and management skills. The main causes of this banking crisis were severe problems in the whole economy, poor bank management and lack of professional skills, weak supervision both from the side of the central bank and owners. The depositors' losses in the banking crisis were large, the money supply decreased, many loans were depreciated, and the trustworthiness of the banking system fell significantly. As to the second

crisis of 1998–1999, looking back it is possible to establish some signs of the crisis:

- (1) Estonian banks took extraordinarily high financial risks through investment companies and their subsidiary companies to get large profits via speculating in the securities market – rapid fall in prices on the share market in autumn 1997 reduced significantly banks' profits and at the end of 1997 and in 1998 almost all banks operated in losses;
- (2) to the changed environment with increasing interest rates from the second half-year of 1997;
- (3) Commercial banks absorbed heavily into non-banking business – for example, the Land Bank of Estonia, which later crashed, owned seven Banks held very high negative level of gap (interest rate sensitive liabilities exceeded significantly rate-sensitive assets) for earning excessive profits in the environment where interest rates steadily decreased during the previous years and they were not able to adjust subordinate establishments and related companies, which dealt with leasing and investing, and with anything else but banking (hotels, processing agricultural products, broadcasting etc). Also other banks were absorbed in risky non-banking business;
- (4) The decision to expand to the Eastern market (Russia and other Baltic States), where the interest rates and possible profitability seemed to be higher, was also too risky and premature, especially in the framework of the Russian crisis in 1998;
- (5) There were various disputes and conflicts of interests between the owners and management, which led to wrong decisions (mismanagement). Good examples should be the Land Bank of Estonia and the Estonian Investment Bank – for example, the shareholders of the Investment Bank intended to sell the bank to the German Schleswig-Holstein Bank in autumn 1997, but the top executives threatened to hand in a collective resignation and so the bank was sold to them;
- (6) Sometimes there were inadvisable relations between the bank management and political powers, and corresponding political pressure – a typical “political” bank was the Land Bank of Estonia where almost all financial risks were ignored and later the Government lost its deposits in the bank amounting to more than 800 million Estonian crowns, EEK (more than 50 million euros).

The authors are on the opinion that the currency board arrangement helped in Estonia to resolve banking crises rapidly and mostly effectively without remarkable rehabilitation costs. The main instruments for anticipating banking crises are tightening of prudential requirements and strengthening of banking supervision. Recent changes in the operational framework for monetary policy and banks' prudential ratios in Estonia were aimed at enhancing financial stability and increasing the liquidity buffers of the financial system. In short-term, the priority focused on restoring foreign investors' confidence in Estonian economic viability.

We may argue that the currency board practically did not help banks fallen into trouble because its resources are intended for guaranteeing the local currency and the central bank is not acting as the lender of the last resort. The currency board is not able to avoid banking crises and cannot guarantee a "soft landing" and rehabilitation of banks in trouble. At the same time, the currency board arrangement supported and strengthened the discipline and responsibility of the main actors – banks, the central bank, depositors, and the Government. A stable currency and presence of respective financial safety net compensated the absence of classical lender-of-last resort facility and ensured the development of the generally reliable banking sector.

The structure of the Estonian banking sector has changed fundamentally during the last years. Today, the banking system is highly concentrated and two Swedish-owned banks dominate in the market. The consolidation process continued throughout the second banking crisis in 1998–1999 resulting in fundamental reorganizations. We can notice all three worldwide trends in the financial consolidation process also in the Estonian market: domestic consolidation, foreign entry and cross-border consolidation, and the formation of financial conglomerates and bank assurances. Some characteristics of the development of the structure of the Estonian financial market are presented in Table 1. Some more interesting conclusions from Table 1: the banking market concentration reached 89.9% at the end of 2005; foreign banks' share in the total assets of Estonian commercial banks increased dramatically amounting to 99.4% at the end of 2005; the Estonian financial sector is clearly bank-oriented – the bank assets to GDP ratio was 113.1% and the banks assets share in the total financial assets was 50.6% at the end of 2005.



**Table 1.** Some Indicators of the Development of the Estonian Banking and Financial Sector

Indicator	1997	1998	1999	2000	2001	2002	2003	2004	2005	05/97
Number of commercial banks	11	6	7	7	7	7	7	9	10	0.909
Number of private banks	11	5	6	7	7	7	7	9	10	0.909
Number of foreign banks	1	2	2	4	4	4	4	4	7	7.000
Concentration index C3, %	69.7	93.0	92.4	91.1	91.1	90.4	90.3	89.9	88.8	1.274
Concentration index C5, %	83.4	99.4	98.9	98.8	98.9	99.1	99.2	98.6	98.1	1.176
Total assets, EUR m	2594	2620	3008	3695	4372	5221	6314	8537	11830	4.560
Total assets/GDP, %	59.2	52.6	57.6	62.2	65.5	69.9	77.6	94.4	113.1	1.910
Foreign ownership in total assets, %	2.3	90.2	89.8	97.4	97.5	97.5	97.5	98.1	99.4	43.22
Private credit by banks, EUR m	1362	1527	1704	2189	2601	3193	4420	5914	8018	5.887
Private credit by banks/GDP, %	31.1	30.6	32.6	36.8	38.9	42.8	54.3	65.4	76.6	2.463
Leasing and factoring portfolio, EUR m	315	399	433	644	893	1232	1491	1589	1727	5.482
Leasing and factoring/GDP, %	7.2	8.0	8.3	10.8	13.4	16.5	18.3	17.6	16.5	2.292
Stock market capitalization, EUR m	837	531	1913	2095	1999	4570	5565	7163	6036	7.211
Stock market capitalization/GDP, %	19.1	10.7	36.6	35.3	30.0	61.2	68.4	79.2	57.7	3.021
Insurance gross collected premiums	70	81	83	98	112	134	168	203	253	3.614
Gross collected premiums/GDP, %	1.6	1.6	1.6	1.7	1.7	1.8	2.0	2.2	2.4	1.500
Investment funds' assets, EUR m	97	23	73	95	193	280	464	705	1175	12.11
Investment funds' assets/GDP, %	2.2	0.5	1.4	1.6	2.9	3.7	5.7	7.8	11.2	5.091
Total financial assets, EUR m	2458	2912	5550	6727	7748	11551	14107	18318	21329	8.677
Total financial assets/GDP, %	56.1	58.4	106.3	113.3	116.1	154.7	173.4	202.7	203.9	3.635
Total private credit, EUR m	n.a.	1902	1709	2089	2601	3282	4194	5527	8357	4.393
Total private credit/GDP, %	n.a.	38.1	32.7	35.2	39.0	43.9	51.6	61.1	79.9	2.097
GDP, EUR m	4380	4984	5223	5936	6672	7468	8133	9038	10460	2.388

Source: Bank of Estonia

Note: Foreign banks consist of foreign banks' branches in Estonia and the banks majority owned by foreign banks



## Theoretical Background

The development of banking can be analyzed with the help of various methods. It is possible to apply ratios (for example, DuPont Financial Ratio Analysis) or to use a Matrix Approach etc. As far as the authors know, nobody has yet used econometric models for analyzing information provided by banks for public use.

Econometric modeling is a process of building and applying models that reflect economic phenomena and economic processes, which is based on economic-theoretical standpoints, empirical data and mathematical and statistical methods. In econometric studies the model is mostly presented as a mathematical model that consists as a rule of algebraic equations or equation systems.

The number of econometric models offered is innumerable. In the present econometric project we have a production function. Basing on empirical data selected, a two-factor Cobb-Douglas functional equation has to be built.

$$y = Ax^{\alpha}z^{\beta} \quad (1)$$

where  $y$  – dependent parameter,  
 $A$  – free member of the equation,  
 $x$  and  $z$  are independent factors  
 $\alpha$  and  $\beta$  are elasticity coefficients.

We set an additional condition that

$$\alpha + \beta = 1 \text{ and } 0 < \alpha \text{ and } \beta < 1.$$

Analysis of time series is important for investigating economic growth, planning and forecasting. Economic processes are extremely complicated in nature, but very often the interrelationships involved can be successfully described using methods of the time series theory. The time series theory belongs likewise to the field of mathematical statistics, being one of its youngest branches that have been rapidly developing in recent years.

As the empirical basis, quarterly data of Estonian banks for the period 1995–2006 were used. Quarterly data had to be used because banks usually publish their income statements once a quarter and thus a shorter period (e.g. a month) could not be used and if a year was taken as the time period, our time series would have been too short.

The time series were treated as consisting of three components:

$$y(t) = f(t) + h(t) + e_t \quad (2)$$

where  $y(t)$  – the actual time series;

$f(t)$  – the linear trend in the time series;

$h(t)$  – the harmonious component in the time series;

$e_t$  – residuals.

The harmonious component is determined as Fourier's series:

$$h(t) = a_0 + \sum_{j=1}^k (a_j \cos \alpha + b_j \sin \alpha), \quad \alpha = j \frac{t 2\pi}{T} \quad (3)$$

where  $j$  – the number of harmonious component,

$t$  – time,

$T$  – length of the time series (the number of periods).

To find the elasticity coefficients  $\alpha$  and  $\beta$ , it is first necessary to find logarithms of the time series of all the selected parameters. The use of the logarithms of the initial data is necessary because the selected function (Cobb-Douglas production function) is nonlinear and the method of least squares can be applied for finding parameters only in the case of a linear function. With the help of logarithms the function is transformed into a linear one and then the parameters can be found using the least squares method.

After that, according to the theory, the trend has to be separated (subtracted) from the data of empirical time series. By trend we refer to tendency, and with its subtraction we liquidate autocorrelation in the time series. Autocorrelation means a relationship between the members of the same time series.

As the next step, we subtract the harmonious component. The harmonious component is periodic oscillation in the time series. It means either one oscillation or the sum of several ones. Subtraction of the harmonious component from the time series means that if multicollinearity exists, it is liquidated.

Finally, as a result of calculating the regression, suitable factor pairs are found. The values of their determinants satisfy the initial conditions set above:  $\alpha + \beta = 1$  and  $0 < \alpha \text{ ja } \beta < 1$

## Estonian Banking System Econometric Models

As empirical data, we chose total income (as a dependent variable, designated as  $y$ ) and profit earning assets, equity, liabilities and fixed assets (as independent variables designated respectively as  $x_1$ ,  $x_2$ ,  $x_3$  and  $x_4$ ) calculated on the basis of data obtained from the balance sheets and income statements of seven Estonian banks. We have already calculated econometric models analogously for several time series of different length (Aarma and Vainu, 2003a, 2003b, 2004a, 2004b, 2005, 2006). The length of the time series for the econometric model calculated in the present study is 45 time sections. The time period is 1995–2006. The year 1995 was chosen as the initial year because by that time the Estonian banking had already stabilized.

*Trendlines:*

$$\ln y = 6,312 + 0,0353t \quad (4)$$

$$\ln x_1 = 9,2669 + 0,06t \quad (5)$$

$$\ln x_2 = 7,1934 + 0,065t \quad (6)$$

$$\ln x_3 = 9,4331 + 0,0544t \quad (7)$$

$$\ln x_4 = 7,6372 + 0,0157t \quad (8)$$

*Harmonious components:*

$$u \ln y = \ln y - f(t) = -0,1151 \cos \alpha + 0,0323 \sin \alpha \quad (9)$$

$$-0,0987 \cos 3\alpha - 0,1035 \sin 3\alpha$$

$$u \ln x_1 = -0,1311 \cos \alpha + 0,0817 \sin \alpha - 0,0803 \cos 2\alpha \quad (10)$$

$$-0,0666 \sin 2\alpha + 0,0475 \cos 3\alpha - 0,0953 \sin 3\alpha$$

$$u \ln x_2 = -0,3406 \cos \alpha + 0,0575 \sin \alpha \quad (11)$$

$$u \ln x_3 = -0,1102 \cos \alpha + 0,0906 \sin \alpha \quad (12)$$

$$+ 0,0568 \cos 3\alpha - 0,1052 \sin 3\alpha$$

$$u \ln x_4 = -0,2677 \cos \alpha + 0,0868 \sin \alpha \quad (13)$$

It is possible to form six different versions of pairs of the chosen four variables. The calculations revealed that the elasticity coefficients of only two pairs –  $x_1$  and  $x_2$ , and  $x_2$  and  $x_3$  – satisfy the predetermined conditions  $\alpha + \beta = 1$  and  $0 < \alpha$  and  $\beta < 1$ .

We treated all possible combinations of the factors and obtained two models that proved to be statistically significant:

### Model I:

$$\ln y = -2,7683 - 0,0252t + 0,035 \cos \alpha - 0,0472 \sin \alpha + \\ + 0,0731 \cos 2\alpha + 0,0606 \sin 2\alpha - 0,0432 \cos 3\alpha + 0,0867 \sin 3\alpha + \\ + 0,91 \ln x_1 + 0,09 \ln x_2, \quad (14)$$

$$y = 0,062769 x_1^{0,91} x_2^{0,09} t^{-0,0252} \exp \left[ \begin{array}{l} 0,035 \cos \alpha - 0,0472 \sin \alpha + \\ + 0,0731 \cos 2\alpha + 0,0606 \sin 2\alpha - \\ - 0,0432 \cos 3\alpha + 0,0867 \sin 3\alpha \end{array} \right] \quad (15).$$

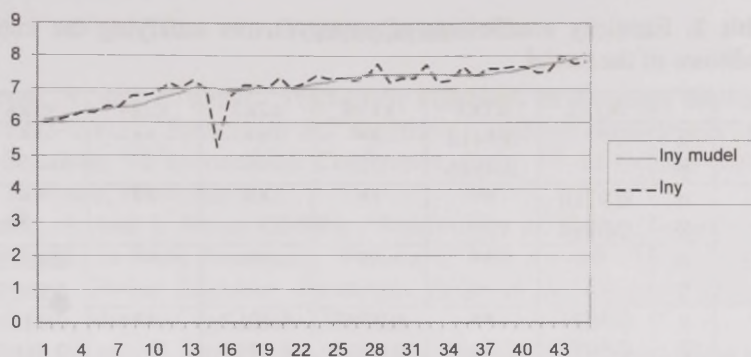
### Model II:

$$\ln y = -0,9582 - 0,0214t + 0,2128 \cos \alpha - 0,0302 \sin \alpha + \\ - 0,0987 \cos 3\alpha - 0,1035 \sin 3\alpha + \\ 0,8269 \ln x_2 + 0,1731 \ln x_4, \quad (16)$$

$$y = 0,2712 x_2^{0,8269} x_4^{0,1731} t^{-0,0214} \exp \left[ \begin{array}{l} 0,2128 \cos \alpha - 0,0302 \sin \alpha + \\ - 0,0987 \cos 3\alpha - 0,1035 \sin 3\alpha \end{array} \right]. \quad (17)$$

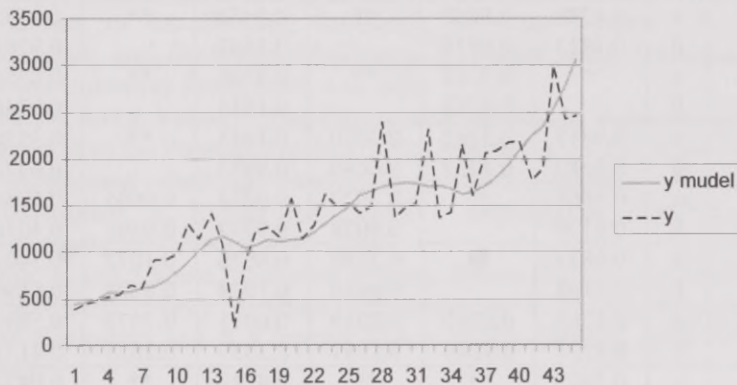
Both models show well the dynamics of the total incomes of banks, and we can say that equity ( $x_2$ ) has been the most important factor in the formation of the total incomes of banks. During the period under study equity increased 21.3 times.





**Figure 1.** Agreement of model (15) with the initial data

Source: authors' calculations



**Figure 2.** Agreement of model (17) with the initial data

Source: authors' calculations

The authors calculated the elasticity coefficients of the econometric models for 16 time periods ( $T = 30-45$ ). The results are presented in Table 2. In all cases total income ( $y$ ) is the dependent variable and independent variables are pairs formed of four factors (equity ( $x_1$ ), profit earning assets ( $x_2$ ), liabilities ( $x_3$ ) and fixed assets ( $x_4$ )). The table includes only the elasticity coefficients of independent paired factors that satisfy the initial conditions of constructing the model. Thorough analysis of the results presented in the table is a topic of our continuing research.

**Table 2.** Elasticity coefficients of paired factors satisfying the initial conditions of the model

T		X1x2	x1x3	x1x4	x2x3	x2x4	x3x4
30	$\alpha$	**	0.5414	**	**	**	**
	$\beta$		0.4586				
31	$\alpha$	0.9210	**	**	**	**	**
	$\beta$	0.0790					
32	$\alpha$	**	**	**	**	**	0.1675
	$\beta$						0.8325
33	$\alpha$	0.4023	**	0.0787	0.4067	**	0.1334
	$\beta$	0.5977		0.9213	0.5933		0.8666
34	$\alpha$	0.5275	**	0.0487	0.3837	**	0.1093
	$\beta$	0.4825		0.9513	0.6163		0.8907
35	$\alpha$	**	0.9179	**	0.8447	**	0.0782
	$\beta$		0.0821		0.1553		0.9218
36	$\alpha$	0.8289	0.9082	**	0.8458	**	0.0739
	$\beta$	0.1411	0.0918		0.1542		0.9261
37	$\alpha$	**	0.9237	**	0.8386	**	0.0854
	$\beta$		0.0763		0.1614		0.9146
38	$\alpha$	0.9417	0.5263	0.3320	0.1045	**	0.3528
	$\beta$	0.0583	0.4737	0.6680	0.8955		0.6472
39	$\alpha$	0.9861	**	0.5922	0.0223	0.0605	0.5984
	$\beta$	0.0139		0.4078	0.9777	0.9395	0.4016
40	$\alpha$	0.6832	**	0.3350	0.8076	0.1072	0.3404
	$\beta$	0.3168		0.6650	0.1924	0.8928	0.6596
41	$\alpha$	0.5263	0.8960	0.8019	0.6011	0.7375	0.5849
	$\beta$	0.4737	0.1040	0.1981	0.3989	0.2625	0.4151
42	$\alpha$	0.1953	**	**	0.8519	**	0.9422
	$\beta$	0.8047			0.1481		0.0578
43	$\alpha$	0.4379	**	**	0.7998	**	**
	$\beta$	0.5621			0.2002		
44	$\alpha$	0.1192	0.5391	**	0.4401	**	0.9545
	$\beta$	0.8808	0.4609		0.5599		0.0455
45	$\alpha$	0.9100	**	**	**	0.8269	**
	$\beta$	0.0900				0.1731	

\*\* The calculated elasticity factors do not satisfy the initial conditions of the model.

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# THE EFFECT OF ASSET PRICE MOVEMENTS ON FINANCING OPPORTUNITIES IN ESTONIA AND OTHER CEE MARKETS

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## **Abstract**

In this article the mechanisms will be analysed how low interest rates and increased offering of funds in the economy influence financing opportunities in Estonia. The main channels are increased interest towards Estonian companies from funds targeting emerging market countries, lower required rates of return and higher property prices. The relationship between asset price level and financing opportunities comes already from Tobin's  $q$  theory.

High prices for properties have improved creditworthiness of several companies and entrepreneurs due to higher collateral values. As a result from the macro perspective Estonian individuals should be able to finance larger investment projects than before.

Lower required rates of returns are visible on the stock market where implied expected rates of returns have decreased. As a result investors are more eager to invest in companies providing slightly better return than the market. Therefore appetite for risk has increased.

Author thinks that currently in Estonian economy availability of funds is not the most limited resource, but rather the number of business ideas and capable management teams. Institutional investors such as pension funds would invest more in Estonia, would there be more investment-worthy companies listed on the stock market. Author thinks that entrepreneurs should exploit currently favorable environment for selling equity and debt.

**Keywords:** *Asset prices, Capital flows, Emerging Markets*



## **Estonia is benefiting from emerging markets boom**

Estonian economy, similarly to other Eastern European emerging economies, has experienced large foreign capital inflows during recent five years. But massive capital inflows have not been limited to Eastern European emerging economies. It also applies to Latin America and other emerging markets. Asset price increases in those countries have been glaring. Taste for emerging market assets have increased due to lack of attractive investment opportunities in low-interest rate environment financial markets in developed countries. Global central banks began stimulative monetary policy after stock market bubbles crashed in 2000–2001.

Global oversupply of money leads to search for hedges to inflation. Traditional hedges for money inflation have been gold, properties and other commodities. Incidentally emerging market countries have large primary sector, namely mining, agriculture and oil drilling. These countries hold the keys for global energy and metals production. Increasing demand for inflation hedges, increasing construction demand and thirst for energy in rapidly growing Asia lead to booming commodity prices. For example about 30% of US demand for copper comes from housing construction. It happened especially in environment where investments into these industries had been low and supply limited.

Combination of commodity boom and globally low interest rates were both very positive for emerging markets. Fear of investing in emerging markets receded step-by-step as positive signals came in from these countries. Emerging market risk premium has decreased to levels not seen after 1997.

These global developments had strong influence on open Estonian economy. By nature economic activity in economy using currency board system is very sensitive to foreign influences. Reflection of these global trends is massive foreign capital inflow into Estonian economy, booming housing market, booming asset prices and rapidly growing wages. As taste for emerging market assets among investment funds has increased, Estonian companies have more financing opportunities than ever. This means lower required rate of return and higher market values of companies. The relationship between asset price level and financing opportunities comes already from Tobin's  $q$  theory.

According to the theory Tobin's  $q$  values in Eastern European emerging capital markets should currently be high and new investments in business assets attractive. This is reflected in large capital inflows into Eastern European equity markets from developed world countries. Another reflection is unprecedentedly large number of new IPO-s<sup>1</sup>. In the first stage of this rise in activity stock prices climbed up and in the next stage companies responded with large offering of shares.

As above described scenario may sound up to the end positive, history has proved changes in direction of global capital flows unexpected and vigorous. This fact is demonstrated by high volatility of emerging market asset prices. Relatively good times have been alternated by several out-of-favor periods. Last time it happened during Asian and Russian crisis. Possible initiators of capital outflows are increase in global interest rate level, the end of current commodity cycle or correction in some emerging market due to too fast exaggeration in price level of assets and costs. Risk aversion towards emerging markets will come back.

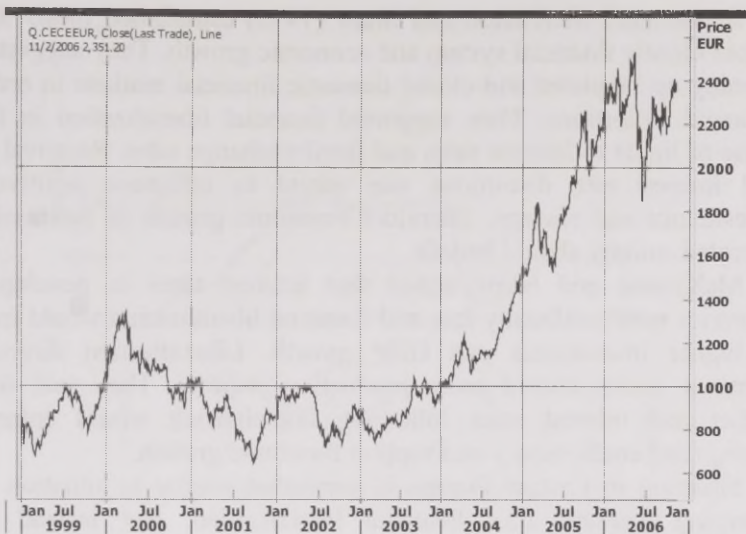
Estonian entrepreneurs should take into account that currently we have favorable period in economic activity and financing opportunities. When situation changes, interest rates and required rates of return will be higher for companies acting in developing countries. Tobin's  $q$  will decrease and financing opportunities in emerging markets worsen. Demand for emerging market assets will be just smaller.

Current suspicion about possible exaggeration in asset prices in Eastern Europe comes from sensation that economic agents extrapolate current favorable environment into farther and farther future. It is similar to stock markets bubble in late 1990-s when investors discounted future cash flows from farther and farther future and utilised unfoundedly low required rate of return in their DCF analysis<sup>2</sup>. Strong increase in Central European stock markets is demonstrated on chart 1.

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<sup>1</sup> IPO – Initial Public Offering

<sup>2</sup> DCF – Discounted Cash Flow



**Chart 1.** CECE EUR Index<sup>3</sup> performance 1999–2006

### Theoretical background

Emerging markets and global capital flows are closely related phrases financial literature. Emerging markets attract important proportion of global direct and portfolio investments. According to the theory global capital mobility should improve productivity and allocation of resources. In countries where capital is scarce and interest rates high, interest rates decline and economic growth accelerates. Costs of financing corporate projects should decline and the value of Tobin  $q$  should rise. In normal stock market this means that for companies it is worthwhile to issue new shares and invest into new business projects. The value of entrepreneur's assets would grow in this transaction as for every invested dollar more than one dollar market value will be created.

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<sup>3</sup> The CECE EUR index is a capitalization weighted index of shares belonging to the Czech Traded Index, the Hungarian Traded Index and the Polish Traded Index.



In literature McKinnon and Shaw (1973) established thesis that linked closely financial system and economic growth. They suggested opening up regulated and closed domestic financial markets in order to avoid distortions. They supported financial liberalization in the sense of limits to interest rates and fixed exchange rates. Removal of real interest rate distortions was meant to influence positively investments and savings. Therefore economic growth of financially liberated country should benefit.

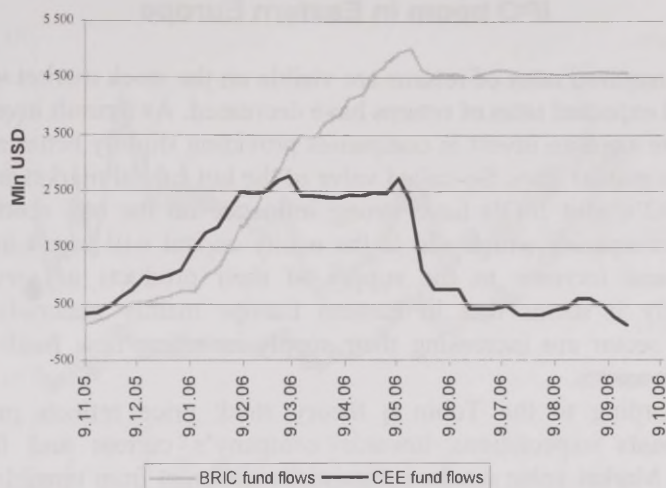
McKinnon and Shaw stated that interest rates in developed countries were artificially low and financial liberalisation would lead to higher investments and GDP growth. Liberalisation directed financial assets toward more productive projects. They said that higher real interest rates following liberalisation would enlarge savings and credit supply and support economic growth.

Situation in Eastern Europe is somewhat similar to situation in emerging markets after financial liberalisation. But instead of financial regulators and monetary policy cutting domestic individuals off from global financial markets, the factors cutting off were general distrust and lack of links to Eastern European emerging markets. The macroeconomic effects to emerging market economies are quite similar.

During capital control periods the link between savings and investments is closer. Therefore it is normal to see lower savings rate due to lower real interest rates which discourage domestic savings and higher capital inflow in terms of higher current account deficit because the marginal product of capital is higher than in developed countries. More than often financial liberalisation goes together with removal of credit and liquidity constraints which is followed by consumption boom and lower domestic savings. During financial liberalisation balance of bank loans increase, asset prices ballooned and consumption increased. During this period private savings decreased. Often these scenarios lead to financial crisis. (Khanna 2004).

On the following Chart 2 cumulative fund flows into emerging markets and Eastern European emerging markets mutual funds are depicted. It shows that until market correction in spring 2006, asset volumes grew rapidly and then turned negative. By now capital inflow has stopped and market participants are waiting for new direction.





**Chart 2.** Cumulative capital flows into mutual funds investing in CEE and BRIC<sup>4</sup> markets weeks from November 9 2005–October 11 2006

Source: Emergingportfolio; author's calculations.

In addition financial liberalisation or opening the markets for international capital flows influences cost of capital for enterprise sector. This is measured by Tobin  $q$  ratio. Entrance of foreign portfolio investors should lower cost of capital and raise Tobin  $q$  for domestic companies. Tobin  $q$  is ratio of market value of invested capital and its replacement value. If  $q$  increases, companies should start to invest more (Khanna 2004).

In addition, during financial liberalisation systematic risk on domestic stock market decreases and stock prices increase. Chari and Henry showed that during 1980–1994 financial liberalisation increased Tobin  $q$  by 40%. The reasons were that stock market risk decreased and cost of capital decreased (Chari et al. 2002).

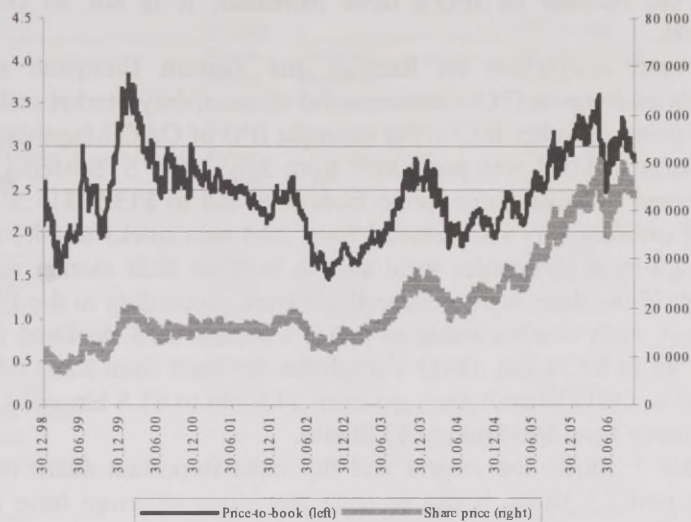
Economic agents should take into account that attitude on Eastern European markets depend on general attitude toward large emerging markets such as Latin America and Asia. According to the data monthly correlations between emerging market yields are 0.7–0.9 (Kulikov).

<sup>4</sup> BRIC – Brazil, Russia, India, China

## IPO boom in Eastern Europe

Lower required rates of returns are visible on the stock market where implied expected rates of returns have decreased. As a result investors are more eager to invest in companies providing slightly better return than the market does. So-called valve of the hot capital market are the new IPO's. But IPO's have strong influence on the real economy. These companies which add to the equity capital will invest in real assets and increase to the supply of their products of services. Currently it seems that in Eastern Europe mainly materials and energy sector are increasing their supply investing new funds into business assets.

According to the Tobin  $q$  theory stock price reflects market participants expectations towards company's current and future profits. Market value can be substantially different from tangible and real physical assets of company due to know-how, extranet and reputation. Tobin  $q$  is ratio of company's market value and value of invested capital.  $Q$ -theory of investments relates the amount of investments to Tobin  $q$ . If  $q > 1$ , then the capital invested into the company is worth more than cost of acquisition of these assets. Therefore investments increase as it is useful to invest into new business assets. Due to decreasing returns to scale, return on invested capital decreases as total amount of business assets increase. Tobin  $q$  ratio also decreases and attractiveness of new investments decreases. Companies put an end to new investments when  $q = 1$ . If  $q < 1$ , it is more useful to sell business assets than run the business. Should the sale of business assets be impossible, companies should stop investing and allow assets erode through depreciation. In the real world price-to-book ratio is close to Tobin  $q$  indicator. On the following chart 3 dynamics of price-to-book ratio for Hungarian large pharmaceutical company Gedeon Richter is depicted. Relatively important assumption of stable return on equity is satisfied. It is visible that price-to-book ratio has generally increased during past three years making issuing new shares more attractive.



**Chart 3.** Gedeon Richter's price-to-book ratio and share price 1998–2006

Tobin  $q$  directly relates real interest rates negatively to investments. In addition to real interest rate  $q$  comprises also positive effect of marginal product of capital on  $q$ , future expectations and uncertainty.

Generally IPO's have strong positive effect on companies undertaking this. For example large Estonian construction company Merko Ehitus got head start over other construction companies in Estonia due to successful IPO in 1997. The head of competing company Eesti Ehitus admitted this positive influence on Merko Ehitus and tried to repeat this positive development after IPO of Eesti Ehitus. Therefore it is competitive advantage being listed on the stock market.

In the beginning of year 2006 there were suspicions whether emerging market investors will be able to purchase all public stock offerings on Russian market. There was information available that about 50 Russian companies planned to offer their shares in 2006, but only ten did so in first half of 2006 (Vedomosti). Smaller number of issues was probably due to market correction in spring. Earlier times it was almost certain that participating in IPO-s was profitable. Now

when the number of IPO's have increased, it is not so certain anymore.

Summer correction on Russian and Eastern European stock markets made some IPO's unsuccessful on secondary market and forced to postpone other IPO's. For example IPO of OAO Magnitogorsk Metallurgical Plant was postponed from July 2006. STS Media Inc. was forced to lower price range from \$16–\$18 to \$13.5–\$15.5. The size of offering was also reduced from 29.4 mln stocks to 24.7 mln. Although most companies were able to increase their market values through IPOs, there were outstanding losers. According to the BDO-Yunikon study market value of OAO Comstar-UTS declined from \$3.03 bln to \$2.34 bln, OAO Veropharm declined from \$280 mln to \$250 mln, OAO Magnit declined from \$1.9 bln to \$1.5 bln and OAO Cherkizovo from \$904 mln to \$728 mln.

Table 1 shows the largest and the most important share issues during past 1.5 years. It can be seen that share offerings have concentrated into energy and materials sectors by volumes. It is expected result because these sectors have been driving emerging market stock markets growth. Consumer sector IPO's in Poland and Russia may be related to rapid growth of wages and favorable stock market situation for equity sales.

Especially hot was IPO of DOM Development – Polish real estate development company. This company is related to especially hot real estate market. Property market in Poland is getting tighter and companies related to property development or construction had strong rallies on the stock market. The price of DOM Development share achieved first day gain of over 50% after IPO. Other hot companies in construction sector were Mostostal Warszawa and Polimex-Mostostal Siedlce. These price levels attract large amounts of new capital into real estate related industries.



**Table 1.** Recent and concurrent IPO's and SPO's in Eastern Europe

Issuer	Country		Pricing date	mln USD
TMK	Russia	Materials	November 2006	900
Bioton	Poland	Healthcare	March 2005	25
Rambler Media	Russia	Consumer discretionary	June 2005	30
Pyaterochka	Russia	Consumer Staples	May 2005	598
Lebedyansky	Russia	Consumer Staples	March 2005	151
Tallinna Vesi	Estonia	Utilities	May 2005	70
LOTOS	Poland	Energy	May 2005	306
UKRPRODUCT GRP	Ukraine	Consumer Staples	February 2005	11
Severstal-avto	Russia	Materials	April 2005	135
Sistema JSFC	Russia	Telecom	February 2005	1560
EVRAZ GDR	Russia	Materials	June 2005	422
AS STARMAN	Estonia	Consumer discretionary	June 2005	13
Tallink	Estonia	Industrials	December 2005	100
Eesti Ehitus	Estonia	Industrials	May 2006	19
Olympic Casino	Estonia	Consumer Discretionary	October 2006	68
Opoczno	Poland	Consumer discretionary	June 2005	137
Polmos Bialystok	Poland	Consumer Staples	May 2005	95
Zelmer	Poland	Consumer Discretionary	January 2005	70
Eurocash	Poland	Consumer discretionary	January 2005	55
ING Bank Slaski	Poland	Financials	March 2005	300
Polmos Lublin	Poland	Consumer discretionary	February 2005	57
MOL	Hungary	Energy	1H 2006	1000
Mechel	Russia	Materials	2004	291
Kalina	Russia	Consumer discretionary	2004	25
PGNiG	Poland	Utilities	September 2006	840
Open Investments	Russia	Financials	2004	70
Pulawy	Poland	Materials	...	110
Polsat	Poland	Consumer discretionary	...	250
LOT	Poland	Industrials	...	
VSMPO-Avisma	Russia	Materials	...	225
Vneshtorgbank	Russia	Financials	2007	
A & D Pharma	Romania	Healthcare	October 2006	100
SkyEurope	Slovakia	Industrials	...	60
Russian Aluminium (RusAl)	Russia	Materials	...	2000
Severstal	Russia	Materials	November 2006	1803
Megafon	Russia	Telecom	November 2006	1000
Raspadskaya Mine	Russia	Materials	November 2006	260
ChelZinc	Russia	Materials	November 2006	295
Pharmstandard	Russia	Healthcare	November 2006	600

Source: Emerging..., Bankier.pl, author's calculations.

## **Influence through higher property prices**

High prices for properties have improved creditworthiness of several companies and entrepreneurs due to higher collateral values. As a result from the macro perspective Estonian individuals should be able to finance larger investment projects.

Real estate has been another segment where booming economic activity is visible. On the negative side it attracts much capital and entrepreneurial resources away from industries producing other goods and services. For example one Estonian businessman said that he is wealthy because he did not start developing property lots and old buildings in his possession. He just waited until these became very valuable and did not risk with loans and liquidity crunch.

As higher property prices increase the possible size of credit through its wealth effect, investments of real assets increase and it should support GDP growth.

On the other hand institutional investors have moved part of their assets from pure financial assets into commercial properties. The share of commercial property has increased from below of assets 5%. Investors lost their belief in shares after 2000 internet stock bubble. Earlier property was boring part of company's assets. Now these are viewed as valuable investment objects. In most countries earnings from properties have not increased as much as prices. The price of property should reflect future incomes from this asset. Rising property prices have influenced GDP growth through wealth effect and increased consumption. People have changed their houses ATM's increasing mortgages. For companies properties are also the most important pledge for loans. Therefore commercial property prices influence corporate investments. Similarly decreasing property prices should influence corporate investments negatively. When property prices fall, the value of collaterals decrease and companies creditworthiness worsens. (Woodall 2003)

One reason why property prices have boomed in emerging and developed markets is that there has been global boom in materials and energy. Both are important inputs in housing construction. In addition there is significant inflation risk. As hedge for inflation gold has been among investors favorites. Housing is another possible hedge for inflation. In the centre of global inflation worry is the decline in dollar value.

There has been also boom of IPO-s of real estate investment vehicles in Eastern Europe. Table 2 gives short overview of new share offerings of real estate-related companies in past of couple years. Although many of these companies have headquarters in Western European countries, all these are very active on Eastern European property markets.

**Table 2.** IPO's of real estate companies

Issuer	Country	Offer date	Issue, mln \$
Lewis Charles Sofia Property	Bulgaria	September 2005	67
Open Investments	Russia	November 2004	...
Open Investments	Russia	2006	1000
Akmerkez	Turkey	April 2005	201
ECO Business Immobilien	Austria	March 2005	...
Tek-Art Turizm	Turkey	July 2000	...
Global Trade Centre	Poland	May 2004	...
XXI Century Invs Publ	UK	December 2005	139
Dom Development	Poland	October 2006	...
Echo Investment	Poland	2004	7
Trigranit	Hungary	planned	...
Sistema Hals	Russia	planned	...
Immoeast Immobilien Anlagen AG	Austria	December 2003	...
Meinl European Land	Austria	November 2002	...
Black Sea Property Fund	UK	March 2005	90
Eastern Property Holdings	Switzerland	August 2005	40
Raven Russia Ltd	Russia	August 2005	286
Orchid Developments Group	UK	July 2005	...

Source: The REX..., author's calculations.

## Discussion

Emerging market asset prices have been characterised by high volatility in history. Relatively good times have been alternated by several out-of-favor periods. Currently we have in-favor period. The situation may change when higher interest rates in developed countries will increase required rates of return in emerging markets increase, Tobin q's shrink and financing opportunities worsen.

What are current proposals? Entrepreneurs should exploit current favourable situation for financing. In authors opinion Estonian entrepreneurs does not need currently so much financial support than education and general supporting framework.

Author thinks that in Estonian economy availability of funds is not the most limited resource, but rather the number of business ideas and capable management teams. Institutional investors such as pension funds would invest more in Estonia, would there be more investment-worthy companies listed on the stock market.

## Conclusions

Estonian entrepreneurs should perceive that current environment for economic activity and financing is favorable. If possible, availability of funds should be used but with high degree of care. Entrepreneurs should take into account that demand for their products or services could be much lower. For example when global demand for commodities falls and capital flow entering Estonian economy decreases and local residents would have possibly less purchasing power. Foreign capital has already stopped massive inflow into CEE emerging market stock markets. Increased supply of new shares through IPO's by companies have created risk that there may not be enough new funds to purchase all new issues and provide power to the market to move decisively higher. Change in supply-demand is visible in attitude towards new share issues. Earlier IPO's were treated as hot events but latterly IPO's have not created such euphoria. Successful IPO is very positive for entrepreneur and his or her company.

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# THE WAYS FOR FUNDING MORTGAGE LENDING IN RUSSIA

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## Abstract

The Russian mortgage market booms headily and requires the long-term funding. At the same time mortgage lenders are liquidity and capital constraint. There is a variety of instruments of long-term funding for housing capital markets in industrial and emerging markets. This article shows the possible ways for funding mortgage lending in Russia: corporate bonds, whole loans sales, securitization and asset management instruments.

**Key words:** *Mortgage, mortgage market, Russian mortgage market, funding for mortgage lending, funding for housing, mortgage-backed security.*

## Introduction

The Russian mortgage market develops intensively during last years. There wasn't any legal private markets in the closed economy of the Soviet Union. After collapse of the Soviet system market institutions began to develop in Russia. Economic reforms moved changes in many sectors including housing finance.

As emphasized by some researchers, a necessary government involvement to generate capital market funding of housing is creation and maintenance of a strong legal system supporting collateralized

lending<sup>1</sup>. The current Russian legal framework for mortgages and mortgage-backed securities includes Civil Code, Civil Procedure Code, Federal Laws “On Mortgage” and “On Mortgage-Backed Securities”. But legislation should be improved, and a number of new legislative proposals (for example, on escrow accounts, taxation) are currently under discussion. Unfortunately, the independence of the judicial system and its immunity from economic, political and social influences in Russia remains uncertain and the court system is generally understaffed and underfunded<sup>2</sup>.

In 1 Quarter 2006 there were 395 credit organizations originating mortgage loans in Russia. At the same time the consumer loans for home-buying were lent by the 662 credit organizations<sup>3</sup>. The Russian mortgage market is highly concentrated: about 70% of mortgage loans volume is lent by 2 stated-owned banks (Sberbank and Vneshtorgbank)<sup>4</sup>.

According to the Central Bank of Russia, as of 1 January 2006 mortgage loans outstanding equaled about 2 billion U.S. dollars. About 58% mortgage loans are denominated in U.S. dollars<sup>5</sup>. Mortgage loans denominated in US dollars are popular in Moscow and Saint Petersburg; in other regions borrowers prefer national currency (rubles) for all payments.

It is important to note that when we say “mortgage” in Russia we mean “residential mortgage”, commercial mortgages are not spread yet.

In spite of development Russian mortgage market remains small – in March 2006 Russia’s outstanding mortgage loans accounts only 1.4% of its GDP; outstanding all home-buying loans equals 2.3% of

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<sup>1</sup> Chiquier L., Hassler O., Lea M. Mortgage securities in Emerging Markets. World Bank Policy Research Working Paper 3370. August 2004.

<sup>2</sup> Russian Mortgage Backed Securities 2006–1 S.A. Prospectus dated 18 July 2006.

<sup>33</sup> Bulletin of the Banking Statistics №3(154). Central Bank of Russian Federation. Moscow, 2006.

<sup>4</sup> Structured Financing in Russia and UIS. Moody’s Investors Service quarterly report. 2006.

<sup>5</sup> Bulletin of the Banking Statistics №1(21). Central Bank of Russian Federation. Moscow, 2006.

GDP. This level is less than in Poland (5.5%), Czech Republic (7.6%) and Estonia (16.6%) and much smaller than in West European countries (for example, 52.4% in Germany)<sup>6</sup>.

Search of the effective instruments for funding mortgage lending is an actual problem for lenders because of capital and liquidity constraining. The main factors affected on this process in a particular country are legal framework, level of the banking system and securities market development, social and economic conditions, investment climate, mortgage lending practice and government regulation.

A well-known American author F. Fabozzi writes that primary (mortgage) market provides the actual loan to a borrower, whereas the secondary market channels liquidity into the primary market by way of purchasing packages of loans from lenders<sup>7</sup>. In international practice there are different instruments which are used by mortgage originators for funding: whole loans, covered bonds, mortgage bonds (on-balance securitization), mortgage-backed securities (of-balance securitization).

Each of the above-named instruments has many varieties. This article shows how the mortgage loans are funded in practice and which ways of funding are theoretically possible in Russia.

### **1.1. Role of Agency for Housing Mortgage Lending and using corporate bonds for funding mortgage loans**

In the early beginning Russian government found a formula for arrangement of favorable conditions to mortgage borrowers, maintaining liquidity in mortgage market and managing the risks of lending. A decision was reached to set up a bi-level mortgage financing system.

In 1997 Russian government established the Agency for Housing Mortgage Lending (AHML) as an operator of the secondary mortgage market. The primary intent of the AHML is arrangement of

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<sup>6</sup> International Securitisation Report, Emerging Europe Roundtable: Grassroots Growth. June 2006.

<sup>7</sup> Fabozzi F. *The Handbook of Mortgage-Backed Securities*. McGraw-Hill, 2001.



conditions for development mortgage lending. AHML buys the pools of mortgage loans from regional operators (intermediaries), which in their turn buy mortgages from banks. At the same time banks can sell pools of mortgages to AHML directly. All mortgages must meet AHML standards by document forms and underwriting requirements.

AHML issues corporate bonds guaranteed by Russian government. The working scheme of AHML is shown in the scheme 1.

Today the AHML's nominal capital equals 163 million U.S. dollars<sup>8</sup>. Government grants preferences to AHML by guaranteeing of its bonds. This is a significant competitive advantage; it allows borrowing long-term financing on relatively low interest rates. By 2010 government is planning to grant to the AHML about 5.6 billion U.S. dollars<sup>9</sup>. Now AHML is planning to issue mortgage bonds according Federal Law on Mortgage-Backed Securities.

However, some authors note that government support of AHML is rather inadequate. In such way G. Souvorov writes: "The basic meaning of the mortgage-backed securities is financing mortgage lending by attracting financing from secondary securities market but it isn't wasting of budgetary funds and state guarantees. State efforts directed to effective securitization legislation will effect much more for mortgage business development in Russia, and finally for housing affordability instead of the thoughtless billions of state guarantees"<sup>10</sup>.

Similar question is brought up regarding to an institutional framework of the U.S. mortgage market. A number of American analysts point out that Fannie Mae and Freddie Mac (organizations in U.S. like AHML) have an anomalous status of being nominally private forms that nonetheless are perceived by capital market to have ties with the federal government that allows them to access to funds more cheaply than any potential competitors<sup>11</sup>.

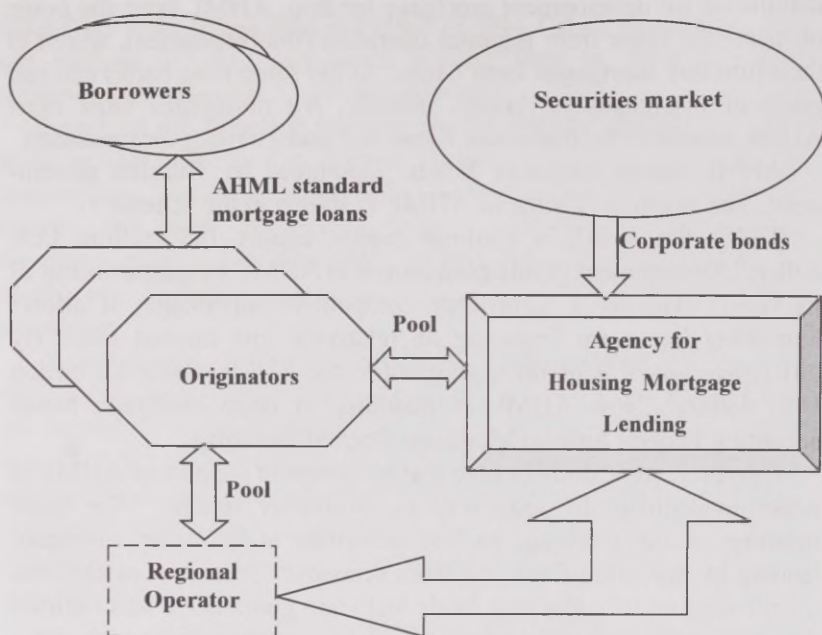
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<sup>8</sup> <http://www.ahml.ru/about/history.shtml>

<sup>9</sup> Conception of unified system of the refinancing housing mortgage loans in Russia.

<sup>10</sup> Suvorov G. Remarks for the Conception of unified system of the refinancing housing mortgage loans in Russia / <http://rusipoteka.ru>

<sup>11</sup> Green R., Wachter S. The American Mortgage in Historical and International Context. *Journal of Economic Perspectives*. Volume 19, number 4, 2005.



**Scheme 1.** Agency for Housing Mortgage Lending.Scheme

From author's point of view the state plays an inestimable role in arrangement favorable conditions for many sectors of economy. There are many positive examples of government support mortgage market development both the development countries and the emerging markets. At the same time government interference in economy shouldn't infringe upon interests of the independent market participants.

Besides AHML collateral corporate bonds are issued by credit organizations and regional operators. In that case the issuer owns collateral (mortgage pool) and obliges to pay interest payments and face-value on bonds to investors.

## **1.2. Whole loans sales**

Nowadays whole loans sales are considered as attractive funding instruments both in U.S. and Europe. Whole loans sales markets first emerged in the U.S. shortly after World War II. More recently this is not considered the main driver. During recent years the whole loan sales market is in a stage of growth in Europe.

E. Bradley and B. Kane define that a whole loans transaction involves the sale of a pool of loans from a mortgage lender to another institution, providing benefits to both parties<sup>12</sup>.

M. Dennis and T. Pinkowish consider that "the third-party originators are mortgage brokers and loan correspondents who sell mortgages they originate to acquiring mortgage lenders called whole sale lenders"<sup>13</sup>.

Whole sale is one of the simple ways for funding mortgage lending in Russia. The characteristic feature of whole loans is absence of unified standard. Some of banks complete agreements with AHML/regional operators and work according AHML standards. Other banks develop their own mortgage products, which differ each from other in Loan-to-value (LTV) level, currency, maturity, scoring system and other characteristics.

The key players in the whole loans sales Russian market are mortgage lenders. Usually large banks buy pool of mortgages for own balance or for further securitization. Each buyer of whole loans selects mortgages according his own requirements. Small and average banks sell mortgage portfolio for funding mortgage origination.

Whole loans are traded by retail and whole-sale, for resale and following securitization. For example, whole loans sales allows buyer to add missing volume of mortgages in securitized pool.

In such situation the originator benefits from an immediate profit by selling the pool of loans for a price greater than the face value. The buyer of the pool is willing to pay this premium in order to gain the

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<sup>12</sup> Bradley E., Kane B. Europe's Whole Sales Market Burgeoning As Mortgage Credit Market Comes Of Age. Standard & Poor's. June 6, 2005.

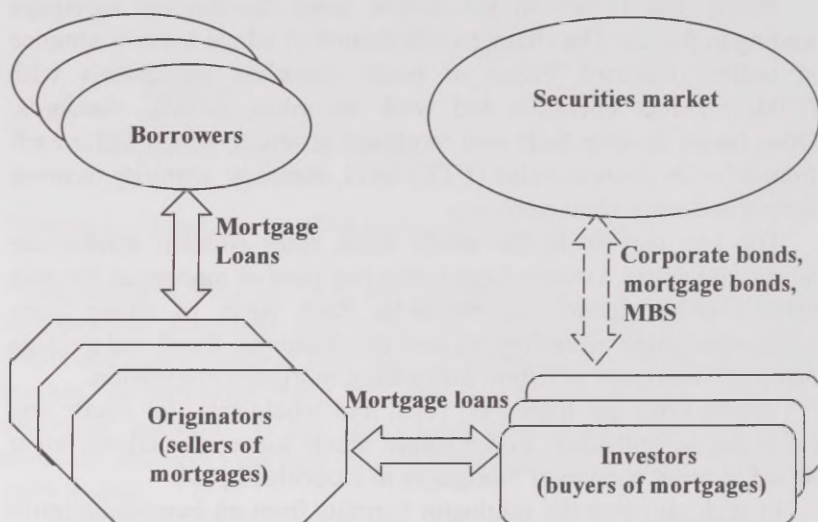
<sup>13</sup> M. Dennis, T. Pinkowish. Residential mortgage lending. South-Western. 2004.

opportunity to securitize the pool to earn a return on the capital markets<sup>14</sup>.

Unfortunately there is no correct disclosed information about volume and number of the whole loans sales in Russia. The scheme of the whole loans sales is shown in scheme 2.

It is really important for parties of whole sales transactions to make correct estimations about originator's mortgage operations for further selection and pricing mortgages. Mortgage market transparency and all-round automation of mortgage operations are among favorable factors for whole sales development.

Also the servicing is a key issue in the whole sales market. In some whole loan sales, the buyer of the loan portfolio will take on the servicing of these loans, while in other cases, the buyer will outsource the servicing to a third party<sup>15</sup>.



**Scheme 2.** Whole loans sales.

<sup>14</sup> Bradley E., Kane B. Europe's Whole Sales Market Burgeoning As Mortgage Credit Market Comes Of Age. Standard & Poor's. June 6, 2005.

<sup>15</sup> Bradley E., Kane B. Europe's Whole Sales Market Burgeoning As Mortgage Credit Market Comes Of Age. Standard & Poor's. June 6, 2005.



### 1.3. Securitization

Securitization is a great financial innovation of XX century. Asset securitization is becoming one of the dominant means of capital formation in the United States<sup>16</sup>. S. Schwarcz remarks that not only asset securitization is one of the most important financing vehicles in the United States, but its use is rapidly expanding worldwide<sup>17</sup>.

Some authors distinguish on-balance and off-balance securitizations. In on-balance securitization the lending institution sets up a fund and then issues securities: assets remain the property of the issuer and remain on its balance sheet, along with securities, which are shown on the liabilities side. Off-balance securitization is when the lending institution isolates the assets backing the issue from the rest of its assets by selling them to a special purpose vehicle, which then issues the securities<sup>18</sup>.

Other researches mean under "securitization" only subtypes of the off-balance securitization. J. Tanega holds an opinion that securitization is the packaging of income producing assets underwritten and sold in the form of asset-backed securities normally secured over those assets<sup>19</sup>. S. Gangwani defined that securitization is a pooling of "homogeneous", "financial", "cash flow producing", "illiquid" assets and issuing claims on those assets in the form of marketable securities. Using securitization, financial institutions and industrial firms can make certain assets suitable for sale in the capital markets<sup>20</sup>.

Author offers to define mortgage securitization as process of transformation illiquid mortgage assets in liquid marketable securities. Thus according last definition we can combine mortgage-backed securities (off-balance securitization) and mortgage bonds

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<sup>16</sup> Securities and Exchange Commission (1992).

<sup>17</sup> Schwarcz S. *The Alchemy of Asset Securitization* // *Stanford Journal of Law, Business & Finance*. Vol. 1:133, 1994.

<sup>18</sup> Suarez J.L., Vassalo A. *European mortgage market: an overview 1992–2003*. WP №562. June 2004.

<sup>19</sup> Tanega J. *Russian Mortgage-Backed Securitizations. Analysis of Legal Structures and Risks*. Russian Structured Finance Investment Forum. September 10–11, 2006.

<sup>20</sup> Gangwani S. *Securitization 101* // *Speaking of securitization*. Vol. 3 Issue 4–1. July 20, 1998.

(on-balance securitization) as “mortgage securities”. Off-balance securitizations are highly developed in U.S.; on-balance securitizations are more typical for Europe. Such approach is not disparaged specific character and complication of the off-balance securitization, at the same time we can consider and compare different ways of funding mortgage origination from securities market.

Total volume of securitized transactions in Russia equals about 3.2 billion U.S. dollars. Among realized securitizations in Russia there are auto loans, lease receivables, future flow, consumer credits and residential Mortgage-Backed Securities (RMBS) transactions. The share of RMBS securitizations equals about 5% of total volume of securitized transactions in Russia<sup>21</sup>.

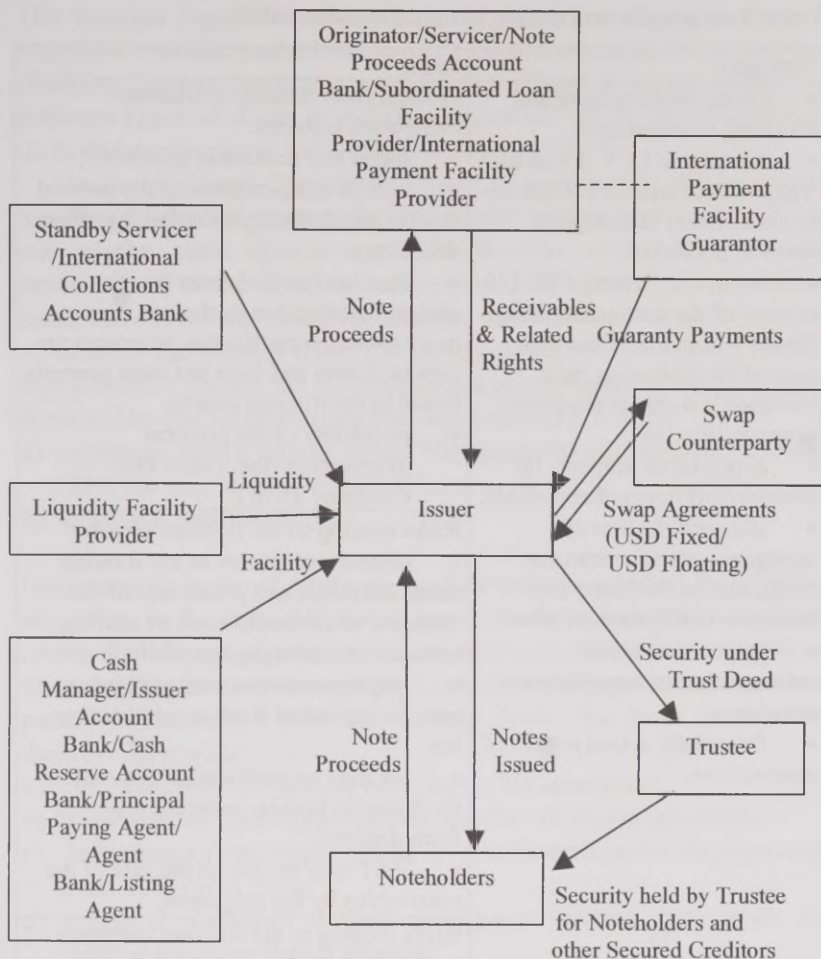
In 2006 the first off-shore securitization transactions of Russian mortgage loans were launched: Russian Mortgage Backed Securities 2006–1 S.A. (88.3 million U.S. dollars) and Citymortgage MBS Finance B.V (72.6 million U.S. dollars). The state-owned Vneshtorgbank and private City Mortgage Bank were as originators in these transactions. The structure of the transaction Russian Mortgage Backed Securities 2006–1 S.A. (originator – Vneshtorgbank) is illustrated in the scheme 3.

Above-named transactions clearly show strengths and risks related mortgage business in Russia (see table 1)<sup>22</sup>.

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<sup>21</sup> Baklanova V. Securitization and MBS in Russia. Moody's Investors Service. 2006.

<sup>22</sup> See Russian Mortgage Backed Securities 2006–1 S.A. Prospectus dated by 18 July 2006; Citymortgage MBS Finance B.V. Prospectus dated by 10 August 2006.



**Scheme 3.** Russian Mortgage Backed Securities 2006–1 S.A.<sup>23</sup>

<sup>23</sup> Russian Mortgage Backed Securities 2006–1 S.A. Prospectus dated by 18 July 2006.

**Table 1.** Strengths and risks relating to Russian MBS

Strengths	Risks
<ul style="list-style-type: none"> <li>• Strong underwriting and servicing requirements;</li> <li>• acceptable LTV (Loan-to-Value Ratio) and DTI (Debt-to-Income Ratio) of mortgage loans in portfolios;</li> <li>• insurance coverage for 110 percent of the loan outstanding for the whole life of the loan against the following risks: borrower's death or disability; property title loss;</li> <li>• appraisal of property by independent licensed appraisals;</li> <li>• state registration of mortgages transfer from the Originator to the Issuer and borrower notification of sale;</li> <li>• presence of credit enhancement in securitization structures;</li> <li>• financially sound parties of transactions.</li> </ul>	<p>General risks relating to Russian Federation includes:</p> <ul style="list-style-type: none"> <li>• social and economic instability;</li> <li>• lack of independence of the judicial system, the difficulty of enforcing court decisions;</li> <li>• Russian law and court practice on assignment is either unclear or inconsistent; securitization structures are new in Russia and have not been properly tested in the Russian courts;</li> <li>• possibility of the political intervention (the Yukos Oil Company affair).</li> </ul>
	<p>Risks relating to the Russian taxation:</p> <ul style="list-style-type: none"> <li>• underdevelopment of the Russian taxation system and possibility of the changes, which could have an adverse effect on the mortgage portfolio;</li> <li>• payments on the mortgage loans may be subject to Russian withholding tax;</li> <li>• tax may be withheld on disposal of the Notes in Russia, reducing proceeds from disposal;</li> <li>• VAT may be due on the sale of the receivables by the originator.</li> </ul>
	<p>Risks relating to the Russian mortgage market and mortgage portfolios:</p> <ul style="list-style-type: none"> <li>• limited secondary market for mortgage loans;</li> <li>• lack of the historical data relating to prepayments and defaults of mortgage loans;</li> <li>• presence of currency mismatch between loan payment in USD and borrower's income in RUR.</li> </ul>



The Russian legal framework for mortgages and mortgage-backed securities remains underdeveloped. "Countries around the world are changing laws to facilitate securitization. There is an abundance of different types of assets in different countries, the biggest challenges lie in developing legal and regulatory frameworks",<sup>24</sup>.

On the one hand, "the development of instruments of the securitization of financial assets and of the market of mortgage securities" is one of the main directions of the Russian state policy on the development of the financial markets in 2006–2008<sup>25</sup>. On the other hand, there is no any special legislation on securitization in Russia.

In 2003 the Federal Law "On mortgage-backed securities (MBS)" was passed, it should lay the foundation of mortgage securitization in Russia. The law distinguishes following types of MBS:

- a) mortgage bonds, issued by the Mortgage Special Purpose Vehicle (SPV) or any lending organization;
- b) mortgage participations.

Unfortunately none of mortgage-backed securities hadn't been issued according to the law. All researches agree in opinion that the main reason for current situation is incompleteness of Russian legislation. The significant amendments to Law on Mortgage securities were passed in December 2005 and in July 2006. The most essential of them are following:

- a) cancellation of obligatory borrower's life insurance;
- b) possibility to issue subordinated tranches of mortgage bonds;
- c) reduction of mortgage bonds overcollateralization requirements from 30% up to 20%;
- d) collateral shouldn't include mortgages without real estate insurance for more than 6 months;
- e) right conferred to investors on prepayments mortgage bonds if it accords to decision of issue.

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<sup>24</sup> Gangvani S. Securitization 101 // Speaking of securitization. Vol. 3 Issue 4–1. July 20, 1998.

<sup>25</sup> Order of the Government of Russian Federation "Strategy of the development of the financial market of the Russian Federation in 2006–2008" №793-р dated by 1 June 2006.

In September 2006 Russian government allows to invest pension savings in mortgage securities. Residential mortgage securities can be included in pension investments after listing of the stock exchange<sup>26</sup>. However Russian legislation on MBS needs further improvements.

### 1.4. Asset management instruments

Instead of national mortgage-backed securities other funding ways (forms of asset management) are intensively developed in Russia: closed end unit investment trusts (CUIT) and common fund of banking asset management (CFBM).

Closed end unit investment trusts are established by Federal Law "On Investment Funds". The working scheme of mortgage closed end CUIT is shown in the scheme 4. For joining to the UIT's asset management agreement potential shareholder should buy shares issued Management Company. The CUIT's property is a common shared property of shareholders; share of CUIT is a registered non-issuing security without face value.

The term of the asset management agreement is concluded for 1–15 years<sup>27</sup>. It is a weakness of CUIT because it can't include long-term mortgage loans over 15 years. An investment interest to mortgage CUIT increases; thus shares of CUIT's most likely will replace mortgage participations.

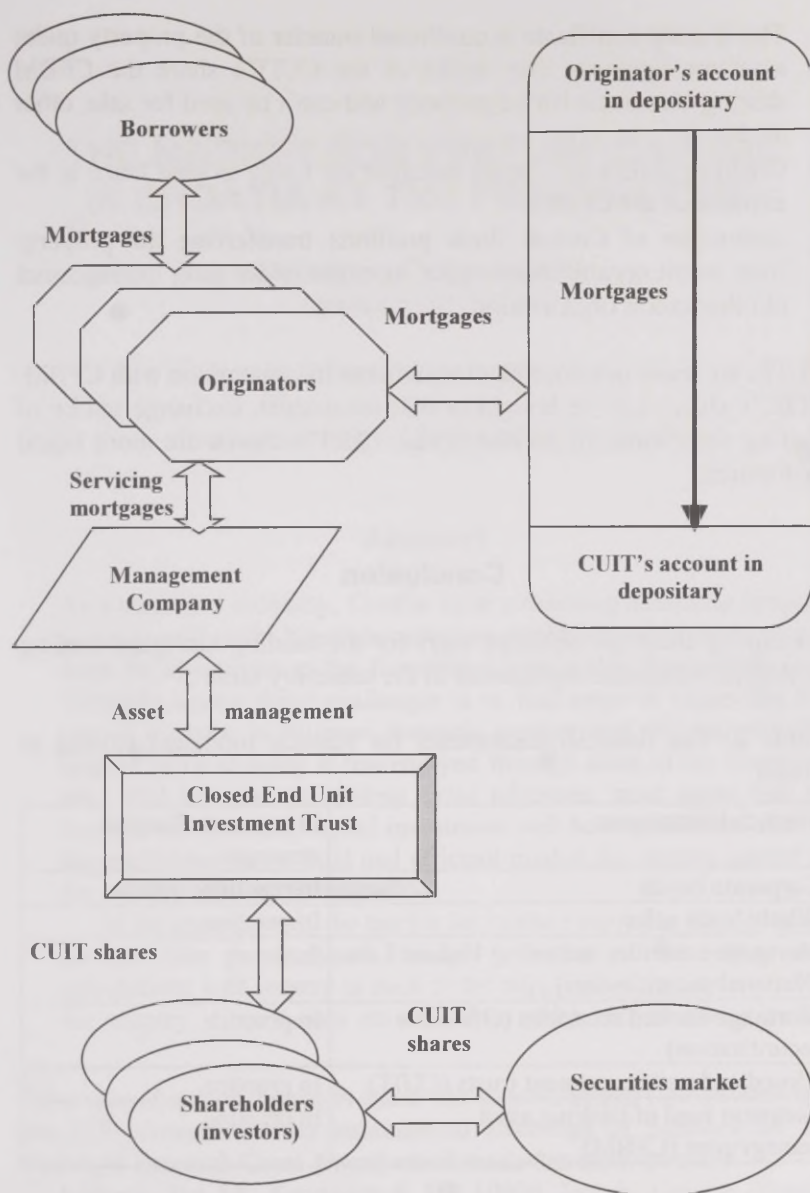
In 1997 Central Bank of the Russian Federation issued Instruction relating to CFBM<sup>28</sup>. The institute of the CFBM looks like CUITs, but there are some differences:

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<sup>26</sup> Resolution of the Government of Russian Federation №379 dated by 12 September 2006.

<sup>27</sup> Federal Law "On investment funds" №156-FZ dated by 29 November 2001.

<sup>28</sup> Instruction of the Central Bank of Russian Federation "On procedure of the implementation of asset management operations and their accounting by credit organizations of Russian Federation" №63 dated by 2 July 1997.



**Scheme 4.** Closed End Unit Investment Trust.

- The sharing certificate is confirmed transfer of the property under asset management. But unlike of the CUIT's share the CFBM sharing certificate isn't a property and can't be used for sale, other deals;
- Credit organization – asset manager isn't able to lend loans at the expense of the CFBM;
- Instruction of Central Bank prohibits transferring the property from credit organization – asset manager under asset management of other credit organization.

CUITs are more development instruments in comparison with CFBM. CUIT's shares can be bought or sold on a stock exchange unlike of sharing certificates of CFBM. Thus, CUIT's shares are more liquid instrument.

## Conclusion

To sum up there are different ways for the funding mortgage lending in Russia, which are represented in the summary table 2.

**Table 2.** The financial instruments for funding mortgage lending in Russia

Financial instrument	Presence in Russian economy
Corporate bonds	In practice
Whole loans sales	In practice
Mortgage securities according Federal Law (National securitization)	In theory
Mortgage-backed securities (Off-shore securitization)	In practice
Closed end unit investment trusts (CUIT)	In practice
Common fund of banking asset management (CFBM)	In practice

Thus, Russian legislation should be improved to make instruments for mortgage funding perfectly clear to investors. At the same time the development of mortgage business depends on general conditions such as stability in economy, politics and society.



# THE MARKET FOR VENTURE CAPITAL IN CROATIA AT THE PRESENT TIME\*

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## Abstract

As a transition economy, Croatia faces a daunting economic struggle if it is to realize the hoped for advances which are expected to accrue from its admittance to the European Union within the next decade. Principle among these challenges is to find ways of expanding the rate of increase in its gross domestic product and still maintain the relative price stability it has enjoyed through most of the transition era. But in order to achieve these advances, most agree that an increase in domestic capital investment will be required and that in accomplishing this a fluid and efficient market for venture capital in the country must be developed.

In the present study the market for venture capital in Croatia at the present time is analyzed through a series of interviews and calculations with respect to each of the suppliers of venture capital in the country. Conclusions are arrived at which seek to determine the

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relative balance between the supply and demand for venture capital. We then look to the reasons behind any imbalance which is found, seek to understand the likely consequences of this imbalance, and suggest means by which the imbalance might be redressed.

**Keywords:** *venture capital, transition, Croatia*

## 1. Introduction

The purpose of this paper is to give an account of venture capital in Croatia at the present time and suggest what could be done to improve the flow of this vital cog in the wheel of economic growth in the country. We define venture capital as funds provided to seed, startup and expansion firms with high prospects for growth, though encumbered with considerable business risk, and, in thin capital market countries, such as Croatia, also subject to considerable doubt as to the efficacy of the exit mechanism<sup>1</sup>. In addition to direct and initial financing, venture capitalists provide entrepreneurial firms with trenches for subsequent direct financing, contacts and sources of additional financing, help with indirect financing (such as trade credits), management and other advisory services, technical expertise and a vast array of other useful services<sup>2</sup>. Venture capitalists are therefore an important determinant of establishment and growth of small and medium size enterprises (see Timmons and Bygrave, (1986)).

In order to undertake the present study, the authors conducted a series of detailed and extensive interviews with all venture capital entities the authors are aware of which operated in this capacity (in any of its many forms) in Croatia at the present time (May, June, July and September 2005). The interviews were semi-structured and incorporated, among other things, a detailed series of questions about the size of the fund in terms of presently employed, committed and available capital, the total number of venture capital investments, the

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<sup>1</sup> For a useful discussion and analysis of venture capital exit mechanisms, see, Dubil (2002).

<sup>2</sup> For an interesting analysis of venture capitalists' role as monitors of managers of private firms which they help finance, see Lerner (1995).

average size of the investment, the industries (if any) in which these investments were concentrated, the average rate of return sought and that achieved, its total number of employees and the capacities in which they operate, their investment criteria, the system of exit mechanisms typically engaged in, their view of the problems faced by venture capitalists and entrepreneurs in Croatia at the present time and means for their alleviation and many other like inquiries.

This paper is structured as follows: firstly, we look at some of the relevant prior literature on the subject at hand. Then, we seek to determine which is more predominant at the present time, the supply or the demand for venture capital in Croatia. Next, we attempt to explain the reasons we find for the current imbalance between the supply and the demand for venture capital in the country and look to the likely consequences of this imbalance. Finally, conclusions follow in which we suggest measures designed to redress present differences between the supply and the demand for venture capital in Croatia.

## **2. Relevant prior literature**

The greatly disparate size of the Croatian economy and that of the US<sup>3</sup> must initially compel one to look elsewhere for examples of international guidance. In a study by Hindle and Wenban (1999) of the Australian venture capital market (an economy far greater than that of Croatia, but with less of a disparity than the US), the authors find that the informal venture capital market in that country is comprised principally of high net worth non-institutional private equity investors (or *Angles* as the term is commonly employed) who provide the bulk of high risk capital directly to new and growing businesses. The funds provided by these sources are considerably more significant than institutional investors as a source of direct financing for entrepreneurial firms. However, while considerable individual high net worth capital is currently at hand in Australia, in Croatia as the result of the economic ravages of the transition era, little such capital is currently available. Moving to an economy far closer to Croatia (both geographically and historically as well as in

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<sup>3</sup> Far more research as to the nature and size of US venture capital has been conducted than with respect to any other country.



terms of economic traditions, though still far greater in terms of size), Germany, and seeking to uncover differences between the venture capital market in that country and that in the US, a striking difference between US and German venture capital is observed in terms of the prime sources of funds for this latter market. While pensions account for the bulk of venture capital resources in the US, they contribute very little in Germany. Banks and insurance companies are more important in this capacity in Germany relative to the US. In addition, in the US, government agencies did not contribute at all to the venture capital market<sup>4</sup>, while in Germany this source represented 8% of total venture capital funds<sup>5</sup>. The above is significant to the present study in that, while Croatia falls well within the Germanic tradition of a financial market largely dominated by debt and banking sources of funds, rather than by equity and ownership financing, only two of the venture capital entities we were able to identify in Croatia got some funds from domestic banks (but none were venture capital arms of banks)<sup>6</sup>. This is so in spite of the fact that the vast preponderance of the banking assets in Croatia are German and/or Austrian owned and controlled. Also interesting, is that the authors were able to uncover and interview one governmental quasi venture capital program in Croatia.

Key to an understanding of the venture capital market in any country is an appreciation of the crucial nature of the contract which specifies the relationship between the entrepreneur and the venture capitalist and the typical such contracts which are drawn in the country. In a landmark study of this vital contractual relationship Kaplan and Stromberg (2002) compare the characteristics of real world financial contracts to their counterparts in financial contracting theory. To do so they study the actual contracts between entre-

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<sup>4</sup> For a noteworthy exception to the above, see Lerner, (1999))

<sup>5</sup> Black and Gilson, (2005).

<sup>6</sup> This can be explained by the fact that the functioning of foreign venture capital funds on the domestic market (because of the non-existent regulatory framework) was, at least until December 31, 2005, much easier than the functioning of domestic venture capital funds. Consequently, the authors discovered that there was only one domestic venture capitalist in the Croatian market, which was really comparable to a venture capital fund in developed countries (see below).



preneurs and venture capitalists and then interpret their results in relation to existing financial contracting theories. Their findings show a rather close association between theory and practice in this area and demonstrate why the nature of these contractual relationships between venture capitalists and entrepreneurs in the US have become a model to be emulated in much of the rest of the world which is seeking to develop an active venture capital market. One of the issues we stressed in our interviews was the nature of the typical contracting relationship between entrepreneurs and venture capitalists in Croatia. While the character of the information we obtained in this area was not uniform across our interviews, we feel we were able to understand much about the nature of the contractual relationships of this type which are common in the country. (For more on this key contractual relationship between the entrepreneur and the venture capitalist, particularly when the various financings are to come in differing stages, see, Booth, Dalgic and Young, (2005a), and Booth, Dalgic and Young, (2005b)).

### **3. Venture capital in croatia at the present time**

Croatia is a Southeast European country in transition and an official candidate for the European Union. It has 4,4 million inhabitants and a GDP of about \$34,99 billion (2005 est.) (CIA, 2006). Although economic growth Croatia has experienced since the stabilisation program was implemented in 1994 has on average been 4,4%, large part of it has only compensated for a huge output loss due to the initial 'transition recession' and war from 1991 till 1995. Inflation in the span of last 10 years (1996–2005) has on average been 3,5%. However, an average administrative unemployment rate from 1998 till 2005 has been 20%<sup>7</sup>. In addition, Croatia has a weak competitiveness position which has been reflected in the widening trade deficit with the EU (Croatia's principal trading partner) since 1993. Hence, Croatia has seen an enormous increase in foreign indebtedness, which now exceeds more than 80% of its GDP.

In order to achieve admittance to the European Union, Croatia needs to have, according to the Copenhagen criteria, "a functioning

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<sup>7</sup> Authors' calculations based on data from the Croatian National Bank.

market economy” which should be able to cope with the competitive pressures of the EU’s internal market. In other words, Croatia needs to strengthen its competitiveness. Although a lot has been done in this respect in the past several years, Croatia is still struggling. For example, World Economic Forum ranked Croatia 61<sup>st</sup> in 2004 and 62<sup>nd</sup> in 2005 according to the Growth Competitiveness Index (out of 117 countries)<sup>8</sup>.

There are four venture capital organizations in Croatia at the present time. Their names are as follows: SEAF Croatia, Horizonte Venture Management, Copernicus Kapital and Quaestus Private Equity Partneri. Horizonte Venture Management and Copernicus Kapital are firms that act as intermediaries between foreign venture capital firms and investees<sup>9</sup>, SEAF Croatia is organized as a representative office of a firm principally based in Washington DC. In addition, there is Vienna Capital Partners, which is not exclusively a private equity firm, but which operates in some of its capacities as such. Moreover, although by no means a source of private equity venture capital, also to be included in this general area as well as within the scope of our interviews is the Croatian Bank for Reconstruction and Development and its Equity Programme<sup>10</sup>. Pertinent qualitative and quantitative information on the above entities is provided in Appendix 1.

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<sup>8</sup> This index rests on the following three factors: “the quality of the macroeconomic environment, the state of the country’s public institutions, and, given the importance of technology and innovation, the level of its technological readiness.” (World Economic Forum, 2005: xiv; emphasis original).

<sup>9</sup> Due to inadequate legal regulation, foreign venture capital funds were, until December 31, 2005, preferred to domestic ones. Simply put, because venture capital funds in Croatia were, until then not regulated. A domestic venture capital fund would pay more taxes than a foreign venture capital counterpart that invests in Croatia (cf. HVCA, 2005).

<sup>10</sup> In the following, for the sake of brevity, we will refer to all six as venture capitalists, although two of them function more as private equity firms – Quaestus Private Equity Partneri and Vienna Capital Partners. However, these two firms have also had venture capital investments. We can define private equity as a term that includes not only venture capital, but also leveraged buyouts, consolidation, mezzanine financing, distressed debt investments and hybrid financing (cf. Lerner, 2000: 520).

Contrary to our initial expectations, based upon the notion that capital is generally a rather scarce commodity in transition economies, some of our interviewees stated that at present there was an excess of supply over demand for venture capital in Croatia. There are two fundamental reasons why we believe this is so. The first is that there is a big difference between venture capital funds committed and venture capital funds invested to date. In addition, we found that venture capitalists in Croatia usually look for entrepreneurial firms themselves (by paying finders fees, telephone solicitations, word or mouth and other such techniques), instead of waiting for entrepreneurs to apply for financing. We take this as a *prima facie* sign of an excess of supply over demand for venture capital. We will examine each of these two reasons in turn.

From the six venture capitalists, three could be considered to have invested the total amount of funds directly available to them<sup>11</sup>. These three are SEAF Croatia, Copernicus Kapital and Vienna Capital Partners. The three others, Horizonte Venture Management, Quaestus Private Equity Partneri and the Croatian Bank for Reconstruction and Development, still have funds to be invested<sup>12</sup>. Although we cannot estimate the exact size of the excess supply (because of the proprietary nature of these figures), Appendix 1 indicates that these funds are likely considerable.

It has been shown from US experience that when the supply of venture capital exceeds demand, venture capitalists have tended to take on riskier projects (see for example, Gompers and Lerner, (2000)). This condition, which is potentially deleterious for an advanced economy such as the US, is especially hazardous for weaker transition economies, such as Croatia. It is also pernicious for the future of venture capital in general. When the supply of venture capital grows relative to the demand for this financing source, lower rate of return, riskier and more questionable projects are taken on by venture capitalists. There tends to be more bankruptcies and lower returns to venture capitalists (giving them less capital for future activities). Adding to this problem is the condition that venture capital

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<sup>11</sup> Or, of disposable money, in the case of Vienna Capital Partners.

<sup>12</sup> However, the equity programme of the Croatian Bank for Reconstruction and Development has not been active for more than two years and it is possible that it will not be active again.



needs to be committed and is constantly seeking high return investments. As a result, since the less risky, higher return projects will be financed first, only lower return, higher risk projects are then available. In the US, when this happened in the early years of this century, more risky projects initially tended to be taken on by venture capitalists, with an eventual decline in venture capital funds committed. More projects were accepted as a percentage of those seen, and this resulted in the risk – return curve tending to shift so as to include more high risk, low return projects. This is potentially very dangerous for Croatia, particularly at this very delicate stage of its transition process.

As we learned from the interviews with venture capitalists, they usually search for investees themselves, which means that supply quite likely exceeds demand. Investees are usually found in business databases or through referrals from business people. However, there are also situations when potential investees apply themselves. Further indicating the excess of supply over demand for venture capital in Croatia is that as told to us in our interviews, venture capitalists frequently pay finder's fees for successful referrals. As venture capitalists generally do not advertise, companies rarely know of their existence, so there is informational asymmetry.

In addition, Croatia is largely a banking culture in the Germanic tradition. Since it is by historical and socio-economic background a debt, rather than an equity culture, entrepreneurs generally think of financing their business ventures in terms of debt and banks, rather than equity and venture capitalists. This lack of an equity culture results in a general failure on the part of entrepreneurs to understand the meaning and use of this form of financing. As recent research of high-technology firms based in Zagreb shows, 60.53% of the firms surveyed answered no to the question of whether they had any interest in a private equity financing of their larger investment projects (Grupe, 2004: 20). The entrepreneurs rejected private equity financing "... mostly due to the fear that they might lose their independence" (Grupe, 2004: 20), and presumably also due to the fear of some loss of control of their firm. The above was so although many such firms suffered from a liquidity problem and a lack of ready financial resources. The aforementioned study found only 21.05% of entrepreneurs expressing a general interest in private equity financing and a miniscule 2.63% who actually attempted to



obtain private equity financing, all without success. These findings are consistent with what an interviewee venture capital firm told us, that in Croatia there was a lack of "... knowledge about venture capital as well as the absence of a mindset conducive to this form of financing". The aforementioned points to the fact that the problem of informational asymmetry is huge.

#### **4. Conditions which might enhance the venture capital market in Croatia**

Our interviews and study of legal, accounting and other institutionally relevant factors uncovered several conditions which might increase the flow of venture capital in Croatia. Speedier litigation procedures and a more efficient court system could result in more rapid contract enforcement and a greater willingness of venture capitalists to take on more projects. One venture capitalist we spoke to indicated that they would welcome a greater system of regulation of their industry, if this would enable and stimulate domestic investors to invest in venture capital funds. In addition to this venture capitalist, the Croatian Private Equity and Venture Capital Association also lobbied for a regulatory framework for the same reasons – growth of the domestic venture capital market. Additional considerations potentially helpful to the venture capital industry in the country lie in the legal environment, which might be improved by the new regulation on venture capital in the Law on Investment Funds, to be discussed below. The small size of the country's economy results in a lack of sufficient economies of scale for the establishment of business brokers. Perhaps by grouping nearby countries such as Slovenia, Hungary, etc., regional business brokerage services could be established.

The interviewee venture capitalists were uniform in their complaints about the questionable enforceability of their contracts, since court procedures appear to be excessively lengthy. One venture capitalist expressed the opinion that "contract enforcement is almost impossible" and went on to do a contract with an investee in London, as opposed to closing it in Croatia. This is consistent with findings about the inefficiencies of the Croatian judicial system and the questionable enforceability of its judgments (European Commission,

2004). It is also in accord with more general conclusions as to the overall inefficiency of the Croatian legal system and its “complicated and lengthy administrative procedures” (see, Social Development Report – Croatia 2001, as referred to in Singer et al., (2003), 37).

It was not until January 1 2006<sup>13</sup>, that Croatian Law formally spelled out and individually specified venture capital in the Law on Investment Funds. Accordingly, venture capitalists functioning in the country could, until the end of 2005, not operate as such on a *de jure* basis. The new Law on Investment Funds has been amended and updated and it now incorporates venture capital funds. However, tax laws on venture capital activities should also be altered so as to enhance the desirability of the use of this activity both from the perspective of the entrepreneur and the venture capitalist.

The lack of transparency of entrepreneurial activities is another problem hindering a larger flow of venture capital. All our interviewees objected to this. Entrepreneurial firms often lack the necessary transparency and openness that stimulate venture capital investments. Also bearing on the transparency issue, especially in a relatively small country such as Croatia, is the quality of the human factor as well as the building of relationships of real trust between entrepreneurs and venture capitalists, which will be enhanced by this greater transparency and which is crucial in making the investment decision-making process in Croatia more efficient.

There are additional reasons for the underdevelopment of the venture capital industry in Croatia. One of the most significant amongst these is that, as further described in Švaljek (2005), pension funds were unable until the end of 2005 to invest in private equity or venture capital funds. Additionally, insurance companies are allowed to invest in private equity or venture capital funds only up to a certain specified limit. Further, the lack of a concessionary corporate tax rate for small and medium size companies is a considerable detriment to such firms as they attempt to compete with the greater economic power wielded by larger firms. Moreover, there are no tax advantages offered to individual investors who might then think more favourable of placing their funds into private equity or venture capital funds. Finally, the cumbersome and lengthy procedures required for both the founding and bankruptcy and/or liquidation of firms, places

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<sup>13</sup> The date when the new Law on Investment Funds came into force.

undesirable encumbrances on both entrepreneurial and venture capital activities.

The new Law on Investment Funds, that came into force on January 1, 2006, regulates venture capital funds for the first time. This law will definitely facilitate the founding of new venture capital funds, although there are some caveats. Namely, only “qualified investors” can invest into venture capital funds, meaning that there is a threshold both for individual and institutional investors into these funds. In our opinion, this threshold is set extremely high for individual investors<sup>14</sup>. In addition, investment limits are set regarding the maximum amount of money to be invested in an industry (venture capital funds are not allowed to invest more than 40% of the fund’s capital in any one industry). Moreover, venture capital funds are supposed to make at least 5 investments from the day they are founded<sup>15</sup>. Furthermore, the Law stipulates that venture capital funds should report to the Croatian Financial Services Supervisory Agency (CFSSA), and that CFSSA should enact by-laws which would further regulate venture capital funds in a way that is unpredictable at the present time. Also, the Law forbids venture capital funds from advertising themselves.

## **5. Conclusions – redressing the imbalance between the supply and demand for venture capital in Croatia at the present time**

This study’s intention was to describe the venture capital industry in Croatia, to investigate the manner in which it performs and to suggest means by which performance might be enhanced. Although the Croatian venture capital industry has been concluded to be less developed than its counterparts in nearby other transition economies in Central and Eastern Europe (i.e. Hungary, Poland and Slovenia, as discussed in Grupe, 2004) and in spite of our findings as to factors hindering its further development, there appears to be a clear excess

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<sup>14</sup> Private individuals who want to invest into (domestic) venture capital funds need to have at least 2.7 million euro of net assets and at least 1.35 million euro of cash for investments into venture capital funds.

<sup>15</sup> Shares of any one investee should not exceed 33% of the fund’s size.



of supply of such capital over demand. Ultimately, this phenomenon is potentially dangerous for the future of the venture capital industry in Croatia and for its economy as a whole. This is the case, among other reasons, since as found for other countries venture capitalists tend to take on riskier and less promising projects when the supply of venture capital exceeds its demand. Accordingly, the development of the venture capital industry in Croatia requires improvements both on the supply and demand sides. We trust that the supply side will be assisted by the measures suggested above. Unfortunately, measures undertaken so as to assist the demand side will likely be the more difficult to successfully realize. For as developed above, this lack of demand seems to be rooted in historical socio-economic conditions which are likely to only change more slowly and over a considerable period of time through education of the entrepreneurial class in the country as to the benefits of proper techniques for the use of equity and venture capital.

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## APPENDIX 1: Venture Capitalists in Croatia

**Table 1:** Pertinent Information on Venture Capitalists in Croatia<sup>16</sup>

Name of management company	Size of fund or of disposable money (in millions)	Average size of investments (in millions)	Total size of all investments to date (in millions)	Total number of investments to date	Total number of venture capital investments <sup>17</sup>
Horizonte Venture Management	€ 20.0	n/a	n/a	2	2
SEAF Croatia	\$ 8.2	\$ 0.3	\$ 8.0 <sup>18</sup>	21	21
Copernicus Kapital	\$ 30.0	n/a	\$ 30.0 <sup>19</sup>	Approx 6	most of them
Quaestus Private Equity Partneri	€ 35.0	ca. € 2.92	ca. € 11.67	4	4
Vienna Capital Partners	€ 35.0 – 40.0	€ 9.0	€ 38.0	4	1
Croatian Bank for Reconstruction and Development <sup>20</sup>	€ 8.22	€ 0.51	€ 4.1	8	8

Source: In-person interviews conducted by authors during May, June, July and September 05

<sup>16</sup> As of July 15, 2005, except for Quaestus Private Equity Partneri (as of September 28, 2005). In euro or US dollars, as stated.

<sup>17</sup> Only seed, start-up and expansion-phase investments are noted here.

<sup>18</sup> Included in this total are \$ 1.0 million of operational costs, mostly attributable to fund management.

<sup>19</sup> Included in this total are \$ 4.0 million of operational costs mostly attributable to fund management.

<sup>20</sup> The Croatian Bank for Reconstruction and Development is a state owned development bank and not a venture capital fund as such. Instead, this is a government run programme which makes equity investments in Small and Medium Enterprises.

# THE STRUCTURE AND THE FUNCTIONING OF THE FINANCIAL SECTOR IN THE BALTIC STATES

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## **Abstract**

The common EU financial services' market creates new opportunities to the Baltic States. At the same time the adoption of the common European currency in Baltic countries is possible only when they fulfil certain economic criteria, namely, a high degree of price stability, a sound fiscal situation, stable exchange rates and converged long-term interest rates. For that it must be strong and competitive financial sector in every new member country as well as an efficient and stable common market for financial services. New currency will affect on economic intermediaries such as banks, payment system, financial markets, regulatory agencies and enterprises. The use of the euro will strengthen Baltic countries' attractiveness for investment and encourage their trade relations, and in the long run will create more favourable conditions for the development of the national economies. Banks and financial sector are sufficiently controlled; therefore transition to euro can be predicted and carried out with a high reliability. In this paper are presented financial institutions across the Baltic countries. The aim of the paper is contribute to better understanding of these intermediaries before of European currency in the Baltic countries.

**Keywords:** *financial sector, banks, financial institutions*

## **Introduction**

The financial and banking sectors occupy a pivotal position in the global economy. These sectors have been subject to many external and internal forces in many countries, particularly in the Estonia, Latvia and Lithuania since the 1990s. Of the external forces, technological change is likely to have the most far-reaching impact on the sectors. Internal change has been greatly amplified by increased customer influence. The synergies of these forces will bring about a major transformation of the financial (and especially banking system) sector.

The financial sector is very important for capital allocation, financial intermediation, transformation of savings into investments, risk sharing and risk diversification. Well-developed financial markets and bank activities also improve productivity and significantly affect economic growth. (Kulhanek 2004). Therefore, the analysis of the financial sector and its role in financial intermediation is very important for new accession countries in the context of the European Union enlargement. In addition, the relation between banking intermediation and intermediation performed by financial markets is becoming increasingly noticeable.

The common EU financial services' market created new opportunities to the Baltic States. But the weakness of financial sector doesn't allow achieving expected growth and improving the productivity. Based on above, the main objective of this paper is to learn about the development of the financial and banking sector in the Baltic States. In this paper are given a brief overview of the development of the financial and banking sector in the Baltic States.

## **The Structure of Financial Sector**

Financial sectors and banking systems in the Baltic States have undergone fundamental changes since the beginning of the transition process about fifteen years ago. All three countries belong to the group of transition economies which evolved from centrally planned to market economies. There were no financial markets, and banking sectors were formed almost entirely by so-called monobanks. Upon transition, the following key reforms were implemented:



- monobanks were abolished and two-tier banking systems with the
- central bank and commercial banks were introduced;
- sectoral restrictions on specialized banks were relaxed;
- the licensing policy for most kinds of banking business was liberalized;
- privately owned banks were admitted and the privatization of the
- state-owned banks was initiated;
- foreign banks and joint ventures were granted access; and
- the legal framework and supervisory system were introduced and adjusted (Kulhanek 2004).

Financial market involves three main groups of participants: final lenders, final borrowers and financial intermediaries (financial institutions and monetary financial institutions). For statistical purposes, all entities of the national economy are grouped into sectors according to their economic activity. According to the guidelines of the International Monetary Fund (IMF) and the European Central Bank (ECB), monetary financial institutions and other financial institutions are central banks, credit institutions, money market funds, insurance companies, pension funds, companies engaged in financial leasing and crediting against customer's right of claim, companies financing exports and imports, pawnshops, investment funds, stock exchanges, brokerage companies, companies engaged in currency exchange, and management companies that exercise direct management and control of subsidiary undertakings involved in financial intermediation (Zubkova 2003).

According to ESA 95 (the European System of Accounts) the definitions of monetary financial institutions (MFI), money market funds (MMF) and other financial intermediaries (except insurance corporations and pension funds; OFI) were introduced on January 1, 2005 in Latvia.

The classification of participants in the Baltic States is presented in the Table 1 (with accordance with ESA 95). The main financial market participants are banks in the Baltic States.

**Table 1.** Monetary Financial Institutions and other intermediaries in the Baltic countries, 2006

	<b>Estonia</b>	<b>Latvia</b>	<b>Lithuania</b>
<b>MFI</b>	Bank of Estonia,	Bank of Latvia	Bank of Lithuania
	Commercial banks	Commercial banks	Commercial banks
	Foreign bank branches	Foreign bank branches	Foreign bank branches
	Representatives of foreign banks	Electronic money institutions	Central Credit Union
		Credit unions	Credit unions
		Money market funds	Money market funds
<b>OFI</b>	Insurances companies	Corporations engaged in lending	Insurances companies
	Investment Institutions	Investment funds	Investment Institutions
	Management companies. Pension Management companies	Securities and derivatives dealers	
	Guarantee Fund	Investment management companies	
		Insurance corporations and pension funds	

Source: Bank of Estonia, Bank of Latvia and Bank of Lithuania

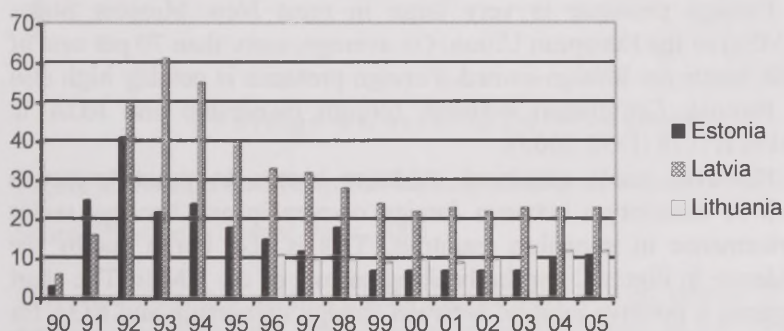
At present, there are already financial sectors in these countries. It characterized by overall financial stability. Some characteristics of the Baltic financial sector are following. Firstly, the population of three Baltic States is totally 7,5 mln. inhabitants. All three countries belong to open economies. At the same time, economic integration within Baltic countries is very limited. Fourthly, the legislative framework for banking meets EU requirements in all three countries. Then, the Baltic banks have a significant share of foreign assets and liabilities. Foreign investments were made primarily by investors from the Nordic countries. Some banks have full ownership of Scandinavia banks. Moreover, in all three countries growth rates is still high and markets are still emerging. In addition to mentioned above, cost of IT development is low and World class Internet banking is available. So local banks provide high quality banking

services. This indicates that the national banking sector is already a constituent part of the global financial environment.

## Banking Sector

Initially the Baltic countries have selected and introduced in life a model of a universal banking, in which the separation of banking and securities is not mandatory and different segments of the financial market are integrated, giving banking groups the leading position in financial intermediation. The history of the Baltic banking was rooted in 1990s (after acquiring the independence). The stages of development of banking system a little differ than other countries with transition economy. In the beginning new banks have appeared one by one, whose careless activity has led to the events which have shocked all banking system (the moratoriums were declared to many banks). In time banking system gradually has improved, the process of licensing and banks merger led to a few banks for the moment (see the Figure 1 ).

The overview of the current number of banks is presented in the next Table 2. There were 7 commercial banks and 7 branches of foreign banks in Estonia by the late 2006s. Currently, 10 commercial banks holding a license from the Bank of Lithuania, 2 foreign bank branches, 3 foreign banks representative offices, Central credit union of Lithuania and 62 credit unions are operating in the country.



**Figure 1.** Number of banks in the Baltic States from 1990 until 2005.

Source: Bank of Estonia, Bank of Latvia and Bank of Lithuania

In Latvia, a credit institution may operate as a bank, or a branch of a foreign bank. At the end of 2006 there were 22 commercial banks and one branch of a foreign bank, 5 representative office of foreign banks and 34 credit unions are operating in the country.

**Table 2.** The number of credit institutions in the Baltic States in 2006

	<b>Estonia</b>	<b>Latvia</b>	<b>Lithuania</b>
Number of commercial banks	7	22	10
Branches of foreign banks	7	1	2
Representative offices of foreign banks	5	5	3
Credit unions	—	34	62

Source: Bank of Estonia, Bank of Latvia and Bank of Lithuania

As stated above, the Baltic banking has changed dramatically since the new economic and legal framework was introduced in the early 1990s. Consolidation was followed by an inflow of foreign capital from Scandinavia. Swedish banks acquired majority stakes in Estonia's two biggest banks, increasing the market share of foreign-owned banks to more than 98 percent. The banking sector with foreign capital is about 67,8 percent in Latvia. Foreign capital comes to the banking sector mainly from the Scandinavian countries and Germany. The 5 largest banks account for 2/3 of total bank assets, with many of the smaller banks targeting niche markets. Currently in Lithuania 87.3 percent of foreign investors owned the local banks. It is about two times bigger than in 1998.

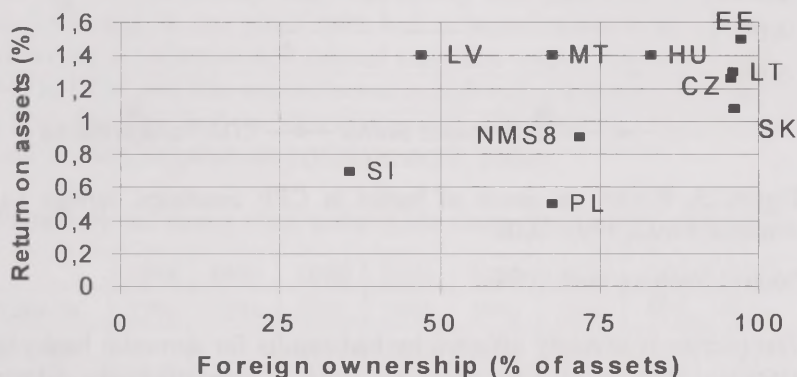
Foreign presence is very large in most New Member States (NMSs) of the European Union. On average, more than 70 per cent of bank assets are foreign-owned. Foreign presence is notably high also in Estonia. Correlation between foreign ownership and ROA in NMSs is 0.78 (ECB 2005).

However, most empirical evidence seems to point toward a positive association between foreign ownership and banking sector performance in transition countries. This is also borne out by the evidence in Figure 2 for the banking sectors of the NMSs. The chart suggests a positive relation between foreign ownership and ROA for the year 2003. It should be acknowledged, however, that banks' performance may vary substantially within the different NMSs, depending not only on ownership, but also on the specialisation and



strategy of the individual banks. Foreign presence is very large in most NMSs, mainly in the form of subsidiaries of foreign banks. On average, 72 per cent of bank assets are foreign-owned. In general, NMS banks have a limited presence abroad which more often occurs via branches in neighbouring regions, but some banks also have equity participations in foreign banks. The market structure of NMS banking sectors is generally characterised by relatively high concentration. On average, the largest five banks hold 72 per cent of total banking sector assets in the NMSs. Given the high concentration in most of the NMSs, potential concerns may arise as regards the degree of competition (Naaborg et al. 2004).

Foreign ownership is beneficial for the banking systems of (former) transition countries since it involves a transfer of technology and human capital, which increases the operational capacity of local banks. In particular, foreign ownership is widely believed to have contributed to an improvement of the risk profile, reputation and risk management of local banks and hence to financial stability in NMSs and a convergence with Western standards.



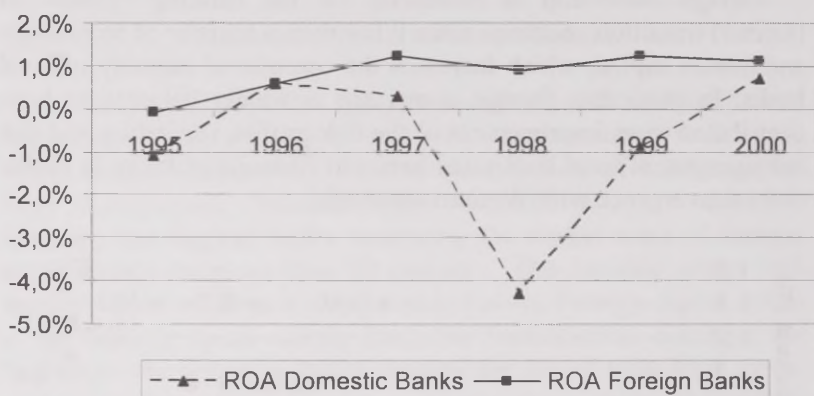
**Figure 2.** Foreign ownership and banking sector performance in 2003

Source: European Central Bank, 2005

There are only few studies on the profitability and efficiency of the banking sector in the transition economies. Green et al. (2002) estimate the efficiency of domestic and foreign banks in CEECs, in terms of economies of scale and scope. They find that foreign banks

are not really different from domestic banks and that bank ownership (foreign versus domestic) is not an important factor in reducing bank costs.

Naaborg et al. (2004) examine to what extent foreign banks are more efficient and profitable than in transition countries, they investigate a number of indicators at the aggregate level for both foreign and domestic banks. The first indicator reflecting banks' profitability is the return on assets (ROA). Figure 3 gives the average ROA for foreign and domestic banks. It appears that the average ROA of foreign banks is higher than the average ROA of domestic banks.



**Figure 3.** Return on assets of banks in CEE countries: foreign vs. domestic banks, 1995–2000

Source: Naaborg et al. 2004

The picture is severely affected by bad results for domestic banks in 1998 and 1999. In all other years, the ROA of domestic banks did not diverge much from that of foreign banks. Figure 3 shows that the ROA of domestic banks tends to converge to the average ROA level of foreign banks. The general conclusion can be that both for domestic and for foreign banks there is an upward trend in ROA, while domestic banks were more sensitive to the economic and financial crisis in 1998 (moratorium from the Russian debt crisis) than foreign banks.

### **The Assessment the Level of Development of the Financial Sector in Baltic States**

However, financial sectors in most of the CEC are still relatively small in comparison to the economic activity, size and depth of financial sectors in developed countries (Poloucek, S. 2004). Baltic States are not exception. At present, there are already financial sectors in these countries, but they are relatively young and small. The overview of the current state is presented in this chapter.

To assess the level of development of the financial sector in the Baltic countries Poloucek applied the ratio of broad money (M2) to GDP and banking assets to GDP, loans to GDP.

The indicator M2/ GDP as a common indicator of bank development (depth of bank). In all three countries the level of financial intermediation, measured by this indicator, is almost similar (Table 3).

Even after more than a decade of transition and bank restructuring, this ratio in Latvia and Lithuania is still under 50 per cent. In Estonia, the ratio of M2 to GDP had distinctively increased from 27 per cent in 1998 and in the year 2005 had achieved around 50 per cent. However, Czechoslovakia entered transition with a very high ratio of M2 to GDP, and this was reflected in high ratios when it split into the Czech Republic and the Slovak Republic (74.4 per cent and 70.5 per cent in 2001, respectively) (Poloucek, S. 2004).

**Table 3.** Broad money (M2) in the Baltic States (% of GDP, 1998–2005)

	1998	1999	2000	2001	2002	2003	2004	2005
Estonia	27%	32%	35%	39%	39%	39%	41%	50%
Latvia	–	–	29%	33%	35%	33%	34%	44%
Lithuania	19%	21%	23%	27%	30%	32%	36%	42%

Source: author's calculations according to data from Bank of Estonia, Bank of Latvia and Bank of Lithuania

As is evident from Table 3, the higher ratio of broad money to GDP in the Estonia. The low ratio of broad money to GDP indicates a low monetary depth of the economy. It stems not only from the low initial level of this indicator at the beginning of the transformation but also from many other factors. Inflation played a crucial role.

The second indicator is the ratio of banking assets to GDP. It confirms that the levels of financial intermediation in the Baltic States are relatively low. These banking sectors are currently still small relative to economic activity.

**Table 4.** Banking assets in the Baltic States (% of GDP)

	1998	1999	2000	2001	2002	2003	2004	2005
Estonia	53%	58%	62%	65%	70%	77%	94%	112%
Latvia	—	—	56%	77%	—	84%	91%	122%
Lithuania	28%	27%	29%	32%	33%	39%	47%	64%

Source: author's calculations according to data from Bank of Estonia, Bank of Latvia and Bank of Lithuania

In 2005 the ratio of banking assets to GDP ranged from as low as 64 per cent in Lithuania to well above 112 per cent in the Estonia (Table 4).

The low share of domestic credit in GDP or relatively low loans to the GDP ratio could also illustrate the limited level of banking intermediation (Poloucek, S. 2004).

The last indicator is the ratio of loans to GDP has better information capability in comparison with the domestic credit to GDP ratio and other traditional financial depth indicators. This indicator was 135 per cent of GDP in the euro area. The ratio of loans to GDP was substantially lower in Estonia in 1998, but reached 74 per cent by the end of 2005. The level of this indicator is still low in Lithuania, but it was increasing last years. This development is illustrated in Table 5.

**Table 5.** Loans in the Baltic States (% of GDP)

	1998	1999	2000	2001	2002	2003	2004	2005
Estonia	30%	32%	35%	37%	41%	52%	63%	74%
Latvia	—	—	22%	31%	0%	41%	51%	78%
Lithuania	12%	12%	11%	14%	16%	23%	29%	41%

Source: author's calculations according to data from Bank of Estonia, Bank of Latvia and Bank of Lithuania

Rapid growth of lending activities was facilitated mainly by the substantial increase in deposits, which demonstrated reinforcement of



public confidence in the banking sector in Estonia and Latvia. The establishment of a deposit insurance scheme, started in 1998, continued to increase this confidence.

In conclusion, the financial sector of the Baltic States has undergone considerable transformation over the last decade. These countries have made a considerable progress and has created an institutional structure and legislative framework to support a market-oriented financial system. The Baltic financial market is consolidating and attracting considerable foreign investment. The entry of strategically important foreign investors into major Baltic banks has made the sector more resilient to general external shocks and increased banks' dependence on the developments in the global financial market.

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# **LEGAL CONSTRAINTS ON COMPANIES' CAPITAL STRUCTURE: EU BASED EMPIRICAL SURVEY**

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## **Abstract**

This paper presents an empirical analysis of the impact of statutory minimum share capital and equity requirements, dividend restrictions and thin capitalisation rules on capital structure. Comparative overview of respective legislation in the EU countries is provided. The empirical survey is based on the information available from the Datastream database in respect of a sample of companies of the EU countries. The results support the hypothesis that in case a country has established thin capitalisation rules, the utilisation of debt financing by the companies who do not exceed the thin capitalisation threshold is lower. However, contrary to the hypothesis tested, companies operating in the conditions of statutory maximum dividend restrictions tend to have a higher demand for debt. Requirements concerning minimum share capital and equity levels and minimum dividends do not seem to have a significant impact on capital structure.

## **1. Introduction**

The formation of companies' capital structure has been an area of theoretical and empirical research for nearly half a century, starting from the early tax-exclusive model of Modigliani and Miller (1958) to the numerous recent interpretations. However, no consent has been reached neither on the optimal capital structure nor on the effect of tax and legal factors on companies' financing decisions.



In most countries, a significant volume of legislation has been adopted to regulate financial affairs on a company level for the purpose of promoting companies' sustainability and protecting creditor rights. These statutory regulations include minimum share capital and equity requirements, dividend restrictions and thin capitalisation rules. The common feature of these rules is that they imply on companies' capital structure and may in various ways constrain voluntary choices between debt and equity financing, as discussed in Hazak (2006a). However, there are significant differences in the corporate law environment of countries, including within the European Union ("EU").

This paper seeks to provide an empirical analysis of the impact of the above regulations on companies' capital structure. The results of this and related studies may bring out a suggestion for changes in some countries' micro level economic policy and legislation.

The remainder of this article is structured as follows. Summary overview of key related literature is provided in section 2. Section 3 deals with cross-country differences in minimum share capital and equity requirements, dividend restrictions and thin capitalisation rules in the EU countries. Section 4 describes the data and methodology used for the survey and presents the key results of the analysis. Section 6 concludes.

## **2. Key related literature**

Several extensive literature analyses have been prepared on the formation of companies' capital structure, including Prasad, Green and Murinde (2001), Myers (2001) and Masulis (1988). These papers cover, besides the impact of taxation and statutory regulations, also research results on other aspects of companies' financing decisions.

In general, modern literature on the structure of capital starts from the non-tax model of Modigliani and Miller (1958). One of the key outcomes of this model is that the capital structure does not have any impact on the company's value and the cost of capital. The model assumes a perfect capital market and non-existence of corporate taxes. In addition, other idealisations are made.

In a later paper, Modigliani and Miller (1963) introduce corporate taxes to the previous model. Their updated model shows that as a

result of taxes, debt becomes a more favourable source of financing than equity. The advantage of debt derives from a "tax shield". The interest costs related to debt decrease profits and hence corporate tax. Companies are therefore motivated to use debt to the extent possible and practicable.

Many subsequent papers take the work of Modigliani and Miller as a basis, by removing constraining assumptions or taking into account additional parameters. One group of such literature deals with the impact of various adjustments to taxable profit on companies' capital structure. DeAngelo and Masulis (1980), for example, incorporate tax depreciation and investment tax credits to the analysis. They conclude that the bigger the tax reducing adjustments to profit (or non-debt "tax shields"), the lower the company's motivation to use debt for tax deduction purposes is. Companies with relatively high non-debt "tax shields" are believed to have relatively less debt in total capital. However, some papers (e.g. Scott, 1977; and Moore, 1986) support the opposite argument. Higher investments (higher non-debt "tax shields") are believed to result in a company's improved ability and motivation to acquire secured debt (higher debt "tax shields").

Hazak (2006a) has addressed the specific impact of thin capitalisation rules. Thin capitalisation rules refer to statutory regulations, which limit the deduction of interest cost from companies' income tax base in the situations where the debts of the company are regarded as too high compared to equity. Thin capitalisation rules usually define a maximum debt to equity ratio, whereas companies using external finance beyond this level are not allowed to reduce the income tax base by the interest cost relating to the excessive portion of debt. An important role of thin capitalisation rules is to tackle potential tax avoidance issues.

Thin capitalisation rules are hypothesised by Hazak (2006a) to result in increased demand for debt in order to finance the additional income tax expense, for a company, which (a) prefers debt (inclusive of the adverse impacts of thin capitalisation rules on the cost of debt) to equity, and (b) has utilised debt finance beyond the statutory thin capitalisation threshold. For a contrary effect, thin capitalisation rules result in decreased demand for debt for a company, which (a) normally prefers debt to equity, but due to the adverse effects of thin capitalisation rules on the cost of debt is forced to start preferring

equity, and (b) has utilised debt finance in a larger volume than the statutory thin capitalisation limit. In case equity becomes more favourable than debt as a result of thin capitalisation rules, the company's equity is higher than that of a similar company in an economy with no thin capitalisation rules.

The determinants of dividend policy have been explored in a large number of papers from Miller and Modigliani (1961), Gordon (1959) and Lintner (1962) to many recent interpretations. However, dividend restrictions have received little attention. Wald (1999) finds that dividend restrictions result in more profitable firms having lower debt to equity ratios. Wald's paper is however focused on contractual (and not statutory) dividend restrictions. Wald and Long (2005) address the effect of the US state laws on capital structure, finding, that laws on payout restrictions appear to reduce leverage for firms that have not reincorporated outside their home states.

The specific impact of statutory dividend restrictions is addressed by Hazak (2006a). In general, there are two main types of statutory dividend restrictions: (i) limitations on the maximum amount of accumulated net profit, which can be distributed as dividends, and (ii) requirements on the minimum amount of dividends that the company has to distribute out of its annual profit (i.e. mandatory dividends). It is hypothesised that limitations on the distribution of a company's accumulated net profit as dividends result in higher equity capital in comparison to the situation where no such restrictions exist and, thus, decreased demand for debt. This statement is hypothesised to be valid if debt finance is less costly for a company than equity capital. Mandatory dividends, however, are considered not to have a significant impact on companies' capital structure.

Hazak (2006a) has also discussed the impact of minimum share capital and minimum equity requirements on companies' capital structure. The minimum amount of share capital needed to start and operate a company tends to be established by law. Requirements concerning the minimum size of equity represent a statutory obligation for a company to maintain its total equity above a certain level, defined as a percentage of share capital, as a fixed amount or otherwise. The theoretical analysis in this paper reveals that these two types of statutory regulations have no impact on companies' choices between debt and equity financing. However in case of very small companies in certain jurisdictions with a high minimum share capital



requirement, equity capital is potentially higher than the voluntary level.

Numerous empirical studies have been carried out to substantiate the existence and importance of the factors that influence companies' capital structure. These studies include Titman and Wessels (1988), MacKie-Mason (1990) and Welch (2004), among others. Examples of empirical studies based on (some of) the EU countries' data include Cornelli, Portes and Schaffer (1998), Nivorozhkin (2005), Haas and Peeters (2006) and Jõeveer (2006). A comprehensive comparison of empirical research can be found in Prasad, Green and Murinde (2001). Similarly to the theoretical literature, there is no consent on the impact of legislation and other factors on companies' financing decisions.

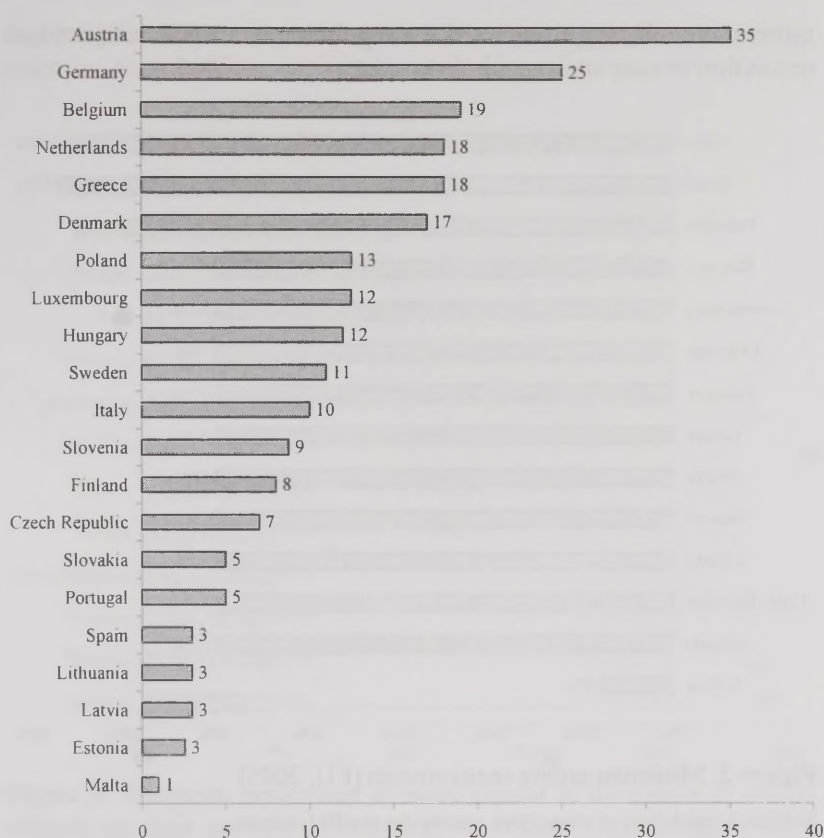
### **3. Statutory regulations in the EU countries**

#### **3.1. Minimum share capital requirements**

Figure 1 summarises minimum share capital requirements in the EU countries as in 2005. Minimum share capital amount needed to operate a limited liability company has been indicated. In case it is possible to operate different types of limited liability companies in one country, the smallest of the respective minimum share capital amounts has been presented in the table. It should be noted that exceptions may apply to the amounts shown in the table, e.g. for companies of specific industries.

There exist significant differences in the statutory minimum share capital amounts. Out of the EU countries the minimum share capital required to operate a limited liability company is highest in Austria, being equal to 35 thousand Euros. On the other hand the United Kingdom, France, Ireland and Cyprus have not established any minimum share capital requirements for (certain types of) limited liability companies.





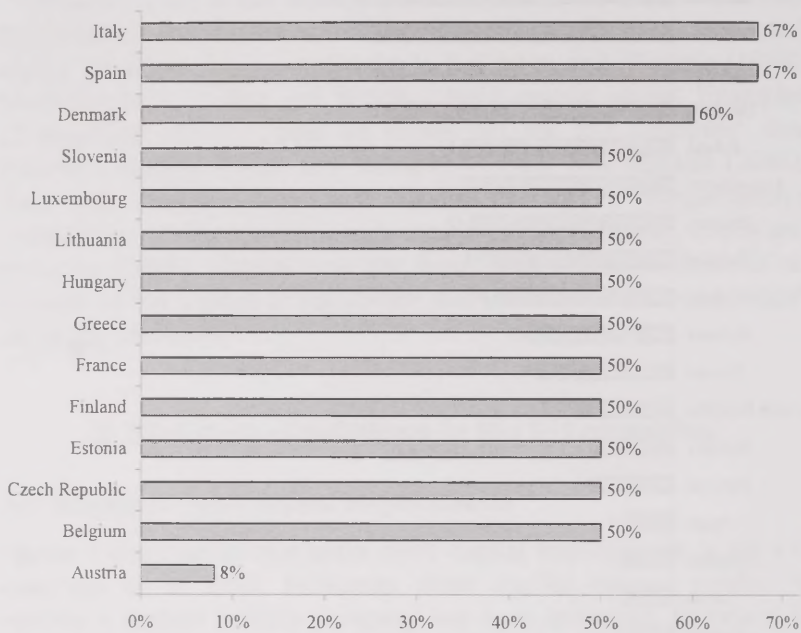
**Figure 1.** Minimum share capital requirements (EU, 2005; EUR in th.)

Source: Legislation of respective countries; see References

### 3.2. Minimum equity requirements

Minimum equity regulations in the EU countries usually establish a requirement to improve the equity position (e.g. by investors injecting additional share capital or by decreasing the share capital to net off the accumulated losses) in case (a) the accumulated net loss of the company exceeds a certain percentage of share capital, or (b) total equity falls below a certain percentage of share capital. Figure 2 summarises minimum equity requirements in the EU countries as in 2005, presented as percentage of share capital and recalculated to

minimum equity requirement if the regulation is a maximum net loss restriction in case such regulations exist.



**Figure 2.** Minimum equity requirements (EU, 2005)

Source: Legislation of respective countries; see References

There have been no minimum equity requirements established in Cyprus, Germany, Ireland, Latvia, Malta, the Netherlands, Poland, Portugal, Slovakia, Sweden and the United Kingdom. In these countries, where such requirements exist, the minimum equity amount ranged from equal to 8% of share capital in Austria to 67% of share capital in Italy and Spain.

### 3.3. Dividend restrictions

In the EU countries limitations on the distribution of net accumulated profit as dividends tend to be defined as a percentage of annual net profit, which has to be retained as a reserve for potential future losses until such a reserve becomes at least equal to a certain percentage of

share capital. Figures 3 and 4 summarise these regulations in the EU countries as in 2005.



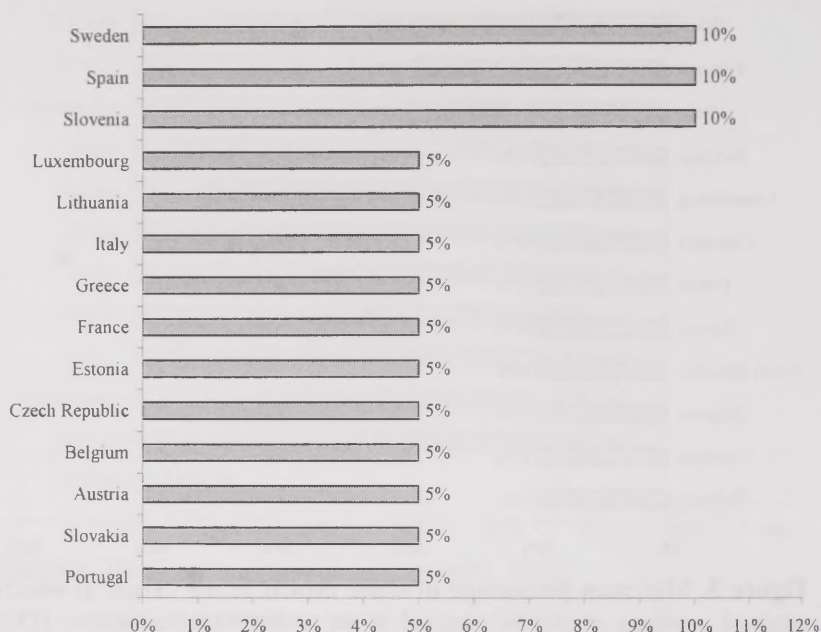
**Figure 3.** Minimum percentage of share capital in the extent of which retained earnings are to be retained as an undistributable reserve (EU, 2005)

Source: Legislation of respective countries; see References

Some EU countries, like Cyprus, Denmark, Finland, Germany, Hungary, Ireland, Latvia, Malta, the Netherlands, Poland and the United Kingdom do not require this kind of a reserve to be created (for certain types of companies). The opposite extreme is Greece, where the amount of accumulated net profit, which has to be retained as a reserve for potential future losses, is set at 33% of share capital.

In these EU countries, which require a minimum undistributable reserve to be created, the minimum percentage of annual profit to be transferred to the reserve is either 10% (Spain and Sweden) or 5% (other countries).

In addition to the limitations due to an obligatory reserve, the regulations adopted in the EU countries exclude some revenues and/or deduct the net book value of certain assets from distributable profits. These limitations are company and industry specific and difficult to quantify.



**Figure 4.** Minimum percentage of annual net profit to be retained as an undistributable reserve (EU, 2005)

Source: Legislation of respective countries; see References

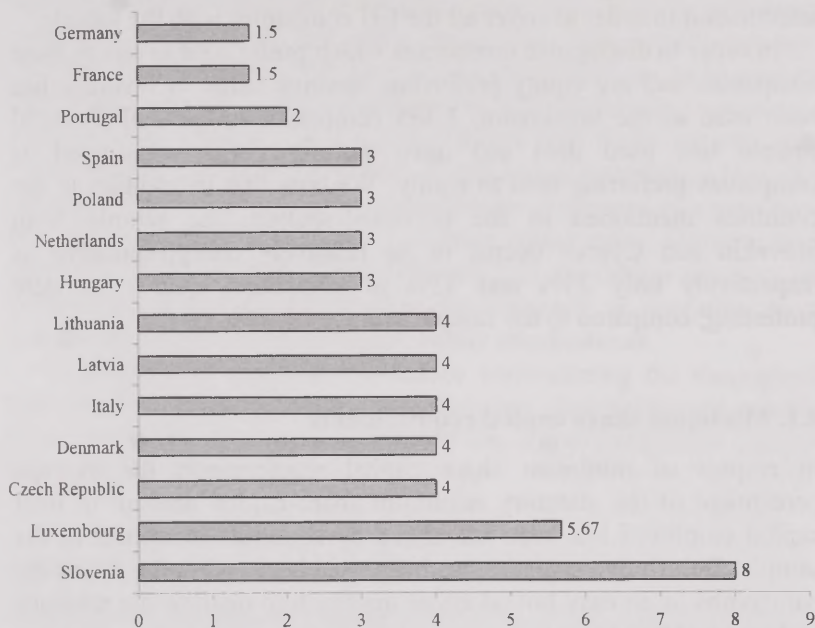
Greece has established a minimum dividend requirement. A minimum annual dividend of the higher of 6% of share capital and 35% of profits is payable (unless 80% of shareholders waive their entitlement).

### 3.4. Thin capitalisation rules

Figure 5 summarises thin capitalisation rules in the EU countries in 2005.



Thin capitalisation rules are expressed as maximum debt to equity ratio defined by law to determine whether a company is thinly capitalised or not. There have been no thin capitalisation rules established in Austria, Belgium, Cyprus, Estonia, Finland, Greece, Ireland, Lithuania, Malta, Slovenia, Sweden and the United Kingdom. In these countries, where thin capitalisation rules have been put into effect, the maximum statutory debt to equity ratio ranged from 1.5 in Germany and France to 8 in Slovenia.



**Figure 5.** Maximum debt to equity ratio for statutory thin capitalisation purposes (EU, 2005)

Source: Legislation of respective countries; see References

#### 4. Data, methodology and results

The empirical information has been gathered from the Datastream database available from Tallinn University of Technology. The version of the database available for this analysis included 2005 financial information of the listed companies of the EU countries. We

have extracted from these companies the ones which (a) information regarding debt and equity components as well as annual revenues and profits was not available for 2005; and (b) do not belong to the financial sector. Due to the above criteria, the sample used for the empirical analysis covers 4,023 companies. It should be noted that the database did not include information meeting the above criteria for any Cypriot, Estonian, Latvian, Lithuanian, Maltese, Slovakian, Slovenian companies. Therefore we used information available from the stock exchanges of these countries as an additional source of information in order to cover all the EU companies with the sample.

In order to distinguish companies which prefer debt to equity from companies that are equity preferring, positive value of leverage has been used as the breakpoint. 3,365 companies or 84% of the total sample had used debt and have therefore been considered as companies preferring debt to equity. We note that in addition to the countries mentioned in the previous section, the sample from Slovakia and Cyprus seems to be relatively unrepresentative as respectively only 25% and 33% of companies qualify as debt preferring, compared to the sample average of 84%.

#### **4.1. Minimum share capital requirements**

In respect of minimum share capital requirements the average percentage of the statutory minimum share capital amount in total capital employed has been calculated by countries in respect of the sample. Descriptive statistics has been used here and in the following paragraphs as an easy but adequate approach to analyse the relations under consideration.

The analysis reveals that minimum share capital amount constitutes on average only 0.00005% of total capital employed by the companies included in the sample. These average percentages vary by country, maximum being 3% of total capital employed. Overall, such results support the hypothesis by Hazak (2006a) that minimum share capital requirements are not a significant factor in companies' capital structure formation.

## **4.2. Minimum equity requirements**

First, the number of companies in the sample, which do not meet the minimum equity requirements, has been identified by countries. The EU average number of companies, which did not meet the minimum share capital requirements, was only 0.8% of total companies.

Second, in order to identify the impact, if any, of the minimum equity requirements on the capital structure of the companies in the sample, the country average leverages of companies operating within the conditions of different minimum equity requirements have been compared to these of the other companies. The overall average leverage of companies operating within the conditions of minimum equity requirements is 32% compared to 37% in the other countries. However, the analysis by countries shows that there are no clear differences in the capital structure of companies operating within the conditions of minimum equity requirements compared to companies that do not have to follow any minimum equity rules. Furthermore, there seem to be no significant differences in the capital structure of companies, depending on whether the company is operating in a country with high or low minimum equity requirements.

In general, no significant evidence contradicting the theoretical analysis by Hazak (2006a), hypothesising that minimum equity requirements do not have a significant impact on companies' capital structure, was found.

## **4.3. Dividend restrictions**

Leverage of debt preferring companies has been compared on country average basis for different minimum equity requirements. It appears that in these countries where no dividend restrictions exist, companies use on average less debt financing (average leverage of 32%) than in these countries where such regulations exist (overall average leverage of 34%). Therefore, the hypothesis by Hazak (2006a) that the existence of minimum equity requirements result in lower use of debt capital, has not found support by the above analysis. However, the results may be impacted by other legal or country specific factors', limited representativity or outlying companies in the sample.

In respect of minimum dividend requirements, the leverage of debt preferring companies operating within the conditions of a



minimum dividend requirement has been compared to other companies. Based on this analysis, the average leverage of companies that operate in countries with no obligation to pay a minimum amount of dividends does not seem to be significantly different from that of a country where minimum dividend requirement exists. No significant evidence has been identified which would contradict the hypothesis by Hazak (2006a) that minimum dividends do not have an impact on companies' capital structure.

#### **4.4. Thin capitalisation rules**

In respect of thin capitalisation rules, debt preferring companies' have been grouped by country and by the applicability and the level of thin capitalisation rules. When comparing the average leverage of companies in such groups, it appears that companies that do not have to meet any thin capitalisation rules tend to use on average less debt financing than companies in respect of which thin capitalisation rules apply. It can also be noted that the stricter the rules, the lower companies' utilisation of debt financing is, though the relation is not so clear in these cases. The discrepancies may partially be explained by the fact that companies still prefer debt financing in the conditions of thin capitalisation rules and prefer to pay the income tax on the interest related to the portion of debt exceeding the thin capitalisation threshold.

Overall, it may be concluded that the results of the empirical analysis give support the hypothesis by Hazak (2006a) that thin capitalisation result in decreased demand for debt for a company, which (a) normally prefers debt to equity, but due to the adverse effects of thin capitalisation rules on the cost of debt is forced to start preferring equity, and (b) has utilised debt finance in a larger volume than the statutory thin capitalisation limit. For a contrary effect, thin capitalisation rules result in increased demand for debt in order to finance the additional income tax expense, for a company, which (a) prefers debt (inclusive of the adverse impacts of thin capitalisation rules on the cost of debt) to equity, and (b) has utilised debt finance beyond the statutory thin capitalisation threshold.



## **Conclusion**

Comparative analysis of statutory minimum share capital and equity requirements, dividend restrictions and thin capitalisation rules in the EU countries as in 2005 shows significant cross-country differences in respective legislations.

Out of the EU countries the minimum share capital required to operate a limited liability company is highest in Austria, being equal to 35 thousand Euros. On the other hand France (starting from 2003), the United Kingdom, Ireland and Cyprus have not established any minimum share capital requirements for (certain types of) limited liability companies. There have been no minimum equity requirements established in Cyprus, Germany, Ireland, Latvia, Malta, the Netherlands, Poland, Portugal, Slovakia, Sweden and the United Kingdom. In these countries, where such requirements exist, the minimum equity amount ranges from equal to 8% of share capital in Austria to 67% of share capital in Italy and Spain. Some EU countries, like Cyprus, Denmark, Finland, Germany, Hungary, Ireland, Latvia, Malta, the Netherlands, Poland and the United Kingdom do not require this kind of a reserve to be created (for certain types of companies). The opposite extreme is Greece, where the amount of accumulated net profit, which has to be retained as a reserve for potential future losses, is set at 33% of share capital. Out of the EU countries, Greece is the only jurisdiction that has established a minimum dividend requirement. A minimum annual dividend of the higher of 6% of share capital and 35% of profits is payable (unless 80% of shareholders waive their entitlement). There have been no thin capitalisation rules established in Austria, Belgium, Cyprus, Estonia, Finland, Greece, Ireland, Lithuania, Malta, Slovenia, Sweden and the United Kingdom. In these countries, where thin capitalisation rules have been put into effect, the maximum statutory debt to equity ratio ranged from 1.5 in France and Germany to 5.7 in Luxembourg.

The empirical analysis presented in the paper, that is based on a sample of companies and their financial information from the Datastream database, gives support to the hypothesis that in case a country has established thin capitalisation rules, the utilisation of debt financing by the companies who do not exceed the thin capitalisation threshold is lower. However, contrary to the tested hypothesis, statutory maximum dividend restrictions (i.e. limitations on the

amount of accumulated net profit which can be paid out as dividends) appear to result in higher demand for debt. The opposite type of dividend regulations, minimum dividend requirement, as hypothesised, tends not to have a large impact on the formation of companies' capital structure. Based on the empirical analysis presented in this paper, requirements concerning the minimum levels of share capital and equity, as hypothesised, do not have a significant impact on companies' choices between equity and debt financing.

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# WHAT IMPACT HAS VENTURE CAPITAL ON EARLY STAGE VENTURES IN ESTONIA?

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## **Abstract**

Estonian policy-makers have set a goal to move towards the higher value added knowledge-based economy. Access to venture capital (VC) and its quality plays an important role in that process. New technology-based and early stage firms usually require both substantial financial and non-financial contribution to support their growth. It is important to know how venture capital hands-on investors contribute to the growth of individual firms and what the impact of VC investor on a venture is. Hands-on VC investors usually promise the entrepreneurs seeking additional capital to contribute non-financial value added along with the monetary VC investment needed to support growth of early stage companies. In the current study the authors group non-financial contributions into three categories: resources (access to distribution channels, manufacturing tools, technology and networks, human resources), knowledge (business expertise, experience, information, contacts), and endorsement (transference of investor's reputation and credibility, providing moral support and legitimacy). The aim of the study is to assess

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the impact of VC's non-financial contributions aside from financial impact on ventures in seed, start-up and early growth phase in Estonia. In other words are the available non-financial contributions of VC in compliance with the expectations of early-stage ventures and which strategies and operating areas of a venture are most influenced by VC? The nature and characteristics of an impact help to estimate the quality of VC investors. The study was carried out in 2005 among Estonian companies who have used VC financing. Estonian venture capital industry is very young and small, and not specialized to specific economic sectors, which certainly has an influence on VC's non-financial contributions and VC's impact. The authors found that access to VC is vital for ventures in early stage in Estonia. Reputation and reliability were considered by ventures as the most important non-financial contributions in Estonia. Access to other useful contacts (business partners, scientists, experts, suppliers, and competitors), management competence/experience and additional financing resources were also rated highly. The authors found that VC investors really contributed their investees, but the impact mostly fell under expectations. VC had strongest impact on the creation of financial strategy and drawing up financial budget. That led authors to the conclusion that VC sector operating in Estonia still lacks professionalism and experience.

**Keywords:** *Venture Capital, Non-financial Contributions*

## **1. Non-financial contributions of VC**

Venture capital is equity or semi-equity-based investment to unquoted high risk early-stage companies through fund raising. Importance of VC is to provide not only financing for early stage high growth companies but also actively contribute non-financial support like expertise, networks, contacts, access to distribution channels, etc. VC investors make a contribution to young high growth companies by being an active partner for them. The impact of all these contributions is not always directly measurable. The purpose of non-financial contributions is to mitigate investment risk and help to build a valuable company, which would enable to earn high capital gains through VC's exit (Initial Public Offering, trade sale, secondary purchase, etc.). Besides financing early stage (seed, start-up and early

growth) companies usually lack management skills, business experience and contacts. These are gaps that an experienced venture capitalist can fill. VC involvement in early stage ventures can be either positive (increase in shareholder value through higher efficiency, competitive advantages, growth and profitability) or negative (destroying shareholder value through negative non-financial contribution). For example problems and conflicts between VC investor and management may arise from different understanding over operating, financing and growth strategy and from lower motivation of the management.

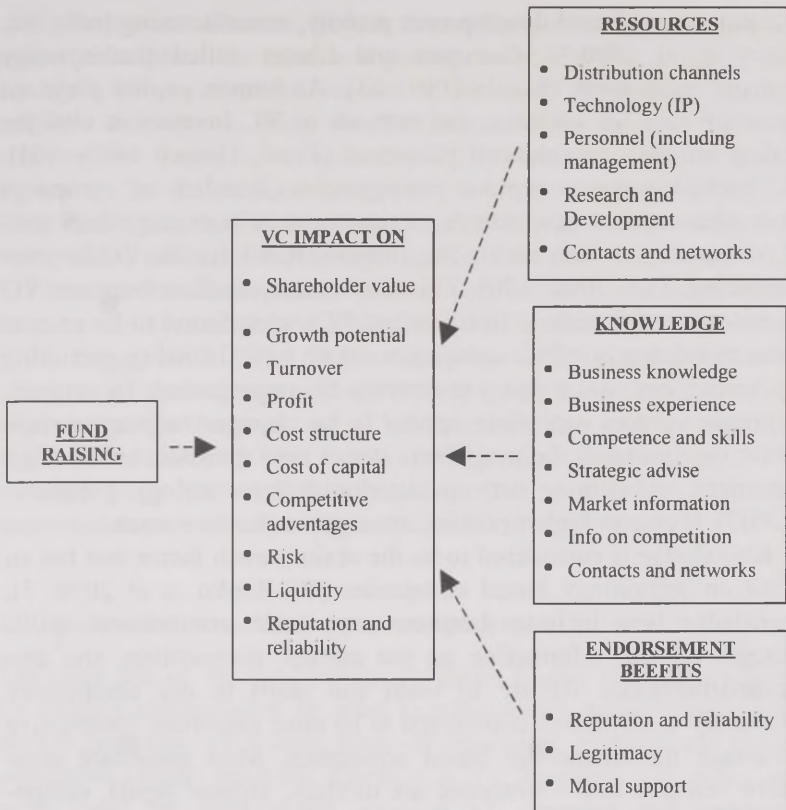
### **1.1. Classification of VC contributions**

In the current study the authors divide non-financial contributions into three categories (Maula 2001: 79):

- Resources – access to distribution channels, manufacturing, technology and intellectual property (IP), networks, human resources;
- Knowledge – business expertise, experience, information, contacts;
- Endorsement benefits – transference of the investor's reputation and credibility, providing moral support and legitimacy.

Nathusis (2002: 17) defined three main roles of VC investors' to help ventures: strategic role (business consultant and financing), social role (mentor, friend and fiduciary) and a role related to networks (contacts for management recruitment, industry contacts, and contacts with other investors). The authors have systemized the possible contributions of a VC investor in Figure 1. Maula et al. (2002) have found that most important non-financial contributions are finding additional capital for next financing rounds, strategic role (business consultancy, sharing experience and business knowledge) and team recruitment.





**Figure 1.** VC contributions and their impact (composed by authors)

Before we interpret and analyse the results of the study we give a short overview of possible contributions and effects of VC on early stage companies.

The main resources a VC investor can contribute to a venture are access to distribution channels, technology, personnel (including management), research and development, and contacts. Knowledge helps to use resources effectively. If a company has no competence and experience of how to use/commercialize technology then it is useless for this company. Young ventures often lack both resources and knowledge. Usually corporate investors can contribute more resources and knowledge than VC investor, for example access to company's distribution channels, intellectual properties (including

patents), research and development activity, manufacturing tools, etc. (Barry et al 1990:3). Gompers and Lerner called that synergy strategic relatedness (Maula 2001: 33). As human capital plays an important role for ventures, the network of VC investor is vital for finding suitable experienced personnel (Fried, Hisrich 1995: 104). VC backed ventures replace management (founders of company) more often against new outside management in later stage than non-VC companies, which lowers the investment risk for the VC investor (Hellmann, Puri 2002: 170). This may cause conflicts between VC investor(s) and founders. Independent VCs were found to be seen as better at helping portfolio companies obtain new financing, recruiting key employees, and helping to develop the organization. In contrast, corporate venture capitalists appear to be stronger helping startups attract new partners, helping them attract new domestic and foreign customers, and helping start-ups develop their technology. (Maula et al 2002). It creates higher positive synergy for the investment.

Knowledge is considered to be the main growth factor that has an effect on technology based companies (Yli-Renko et al 2000: 5). Knowledge here includes business experience, competence, skills, strategic advice, information on the market, competition, and also contacts/networks. Ability to learn and skills to use competence effectively is nowadays considered to be most important competitive advantage for technology based companies. Most important areas where ventures lack knowledge are markets, clients' needs, competition, and marketing. New ventures are usually competent in their technology but they do not have information on markets, competition, and marketing skills. VC investors and business angels contribute on drawing up a business strategy and giving different business advice. This is very valuable for young ventures, which lack such expertise and experience. This lets us assume that VC investor should have a successful and long track record (entrepreneurial experience). Past entrepreneurs have become later VC investors. They usually act as partners of the management company which raises VC funds, or as business angels. In a young market economy there is always lack of experienced entrepreneurs who could run a successful VC fund and be a good partner for portfolio companies. Survey conducted by EVCA found that most important non-financial contribution for ventures was strategic advice, followed by networks and moral support (Survey of .... 2002: 15).

Endorsement benefits include reputation, reliability, legitimacy and moral support. As small and young companies are at higher risk, it is difficult to get acceptance and reliability in the eyes of business partners and clients. They do not have a track record, which is important in business. A reputable VC investor can help to create legitimacy for the venture (Maula 2001: 13; Bottazzi, Da Rin 2002: 236). It certainly improves venture's reliability as VC investors trust him and are willing to take even bigger shareholder risk. Professional VC investor has an impact on others' opinion of the venture, which helps to recruit management and to find business partners (Stuart et al 1999, Engel 2002: 21). VC investor can offer moral support by acting as a fiduciary and a friend for the founders. This is the reason why ventures prefer experienced VC investors with strong reputation. Fried and Hisrich (1995: 104) also considered this argument a valuable factor for small ventures. It is also considered to be very important in case of corporate investors (Maula et al 2002).

## **1.2. Early studies on VC impact on ventures**

The main aim of VC fund raising is always to add shareholder value for existing shareholders. In order to achieve that, an early stage high growth company needs more than just financing. Younger and riskier companies usually get more attention by VC investors. The closer and more open the relationship between VC investor and venture's management the higher the benefit from VC (Maula 2001: 42; Fried and Hisrich 1995: 102). Sapienza (1992) has found that the impact of VC is the bigger the higher is the innovativeness of the company.

It is very complicated to measure isolated impact of different VC contributions on shareholder value or on current financial performance of a venture. It is easier to estimate the direction of the impact (positive or negative), whether the contributions of VC are in compliance with management's expectations (relative strength of impact), and which operating areas of venture are most influenced by VC (in other words, how the contribution acts). The authors also used that approach in the current study.

Many researchers have studied VC impact on ventures' growth, because it is a ground for future growth in shareholder value and successful financial performance. Without growth you can not expect success and profitable exit. Results are still controversial. Engel



(2002, 14), Davila *et al* (2002: 17) and Kjærgaard and Borup (2005) found that companies which have used VC have grown faster in terms of employment. Manigart and Hyfte (1999) on the contrary did not find the abovementioned impact in their study among Belgium companies. They found that VC has a positive impact on assets growth but not on value added and employment. Buerger *et al.* (2000) also did not find VC impact resulting in higher employment growth compared to other companies. Gompers and Lerner (1999a) have pointed out three reasons why VC-backed companies should be more successful than non VC-backed companies:

- 1) VC investors are screening out companies which have higher growth potential and chances to success.
- 2) VC investors offer different non-financial contributions that conventional financial intermediaries do not supply.
- 3) VC investors monitor companies' performance constantly and collect information for decision-making (lower information asymmetry).

The development stage of VC industry in a particular economic environment plays an important role in VC's quality. VC impact is lower in countries where VC industry is young, inexperienced or less developed than in the USA (Maula 2001: 18). VC industry and market in the USA is the most active, competent and biggest. European VC industry has less competence and experience in hands-on investment management. That helps to explain different results of the abovementioned studies on VC contributions.

## **2. Results of the study and conclusions**

### **2.1. Research problems, data and methodology**

The authors set up five research problems:

- 1) Which VC contributions do Estonian entrepreneurs value as the most important?
- 2) Which VC contributions become available with VC investment for Estonian entrepreneurs?
- 3) Are the available contributions of VC in compliance with the expectations of early-stage ventures?
- 4) Which operating areas of the venture are most influenced by VC?



5) Which is the overall estimated impact of VC investment on a company?

The research was carried out in 2005 among the CEO's of Estonian VC-backed companies. The survey was conducted using a questionnaire with sections covering background information on venture capitalist and the firm, contributions provided by the most important (by investment amount) VC investor, the estimation of the importance of different VC contributions, the expectations towards venture capitalist and the extent of its fulfilment, the perceived impact of VC investor on various corporate activities and strategies, and the overall impact to the development of the firm. The initial sample consisted of all (15) VC-backed early-stage companies in Estonia known to the authors. The questionnaire was sent to 11 of them<sup>3</sup>. Of those 11 companies, 6 returned the filled questionnaire (response rate of 55%). A VC investor was still a shareholder in 4 ventures at the time of the study. The low absolute number of respondents makes it less reliable to draw profound conclusions on the subject but the authors believe that the results should still be representative for the small and early-stage Estonian VC market. 5 respondents were IT and/or internet companies, and one was a biotechnology company. Estonian VC investors have so far avoided making an investment into early stage biotechnology ventures because of lack of experience and competence about running this kind of investments. Usually investment horizon of an early stage biotechnology company is also too long (10–15 years) for investors. It all makes risk unbearable for VC investors. Early stage biotechnology companies have therefore been mostly sponsored and financed by Enterprise Estonia<sup>4</sup>.

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<sup>3</sup> 4 companies were either already liquidated, in bankruptcy or refused to answer when they were asked for permission to send the questionnaire to them.

<sup>4</sup> Enterprise Estonia is a public institution which provides financing, advice, partnership opportunities, and training for entrepreneurs, research and development institutions in Estonia. Enterprise Estonia is one of the institutions responsible for the implementation of EU structural funds in Estonia. It operates under the Ministry of Economic Affairs (Enterprise Estonia, [www.eas.ee](http://www.eas.ee)).

## 2.2. Results of the study

### 2.2.1. Description of companies and investments

All the entrepreneurs questioned, had involved VC investor into their company in the year 1999 or 2000, at the time of great VC market boom. It was easier to get VC financing to internet-related businesses at the time of dot.com boom, which also explains the prevalence of IT companies in the study. There was even oversupply of VC. All the firms in our sample had involved capital from VC funds or business angels. The transactions were structured using common shares, which was characteristic to the time of the boom market<sup>5</sup>. Only one company (only business angel) had used as well convertible loans. Investors were willing to take the highest risk. According to world practice, VC investors usually take minority interest in the company. Our results indicated though that in two thirds of the respondents majority stake of the company was acquired by VC investor. VC investors preferred to take control over ventures.

5 ventures were financed by a VC fund. One venture was financed by foreign VC fund and other four by local funds. One venture involved financing from a business angel<sup>6</sup>. VC investors usually prefer not to invest farther than 200 km-s from home, which localizes the VC market. At the time of investment all ventures were in an early stage of development (four ventures in seed and two in start-up stage). In five cases VC investor acquired a seat at the board of directors and in two seed stage companies the representative of VC investor was involved in the management. In the company which was financed by business angel investor took actively a part both in the board and in executive management.

After the boom market VC investors became more risk averse due to big losses and lower exit valuations. Early state ventures'

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<sup>5</sup> Investors were willing to take higher risks. After the market boom it has been much more difficult to get VC financing, deals are usually structured using convertible preferred shares or convertible loans, which lowers the downside risk and increases the yield potential for venture capitalists.

<sup>6</sup> An investor is a person who invests in a business venture, providing capital for start-up or expansion. These individuals are looking for a higher rate of return (typically 25 percent or more).

access to VC financing in Estonia was sharply restricted. At the moment of study in summer 2005 there was only one early stage VC fund which actively built a portfolio in Estonia but it clearly avoids seed and start-up stage investments.

We studied frequency of involvement by VC investor in venture's activity and its sufficiency for management. We found that investors with bigger ownership were more active (hands-on) and management considered it sufficient (see table 1). In two companies where investor had acquired minority stake involvement was rare and management did not regard it sufficient. We can conclude that if VC investor trusted management and did not want to be involved much then they did not need to acquire majority stake. They were rather more hands-off financial investors.

**Table 1.** Frequency of VC investor's involvement in venture's activity, management's estimation on sufficiency of this involvement, and their correlation with VC's share of ownership (number of companies).

VC investor's ownership	Number of companies	Frequency of involvement		Management's estimation on involvement		
		At least once a month	At least once a quarter	Is not enough	Sufficient	More often than needed
30,1–49,9%	2	0	2	2	0	0
50% and more	4	3	1	0	4	0

We concluded from responses also that investors are more active in case of seed stage ventures because seed stage companies need a closer attention of VC investors than later stage companies. This corresponds also to the findings of Maula (2001: 42) and Fried, Hisrichi (1995: 102).

### **2.2.2. Analysis of non-financial contribution and its impact**

Our study was based on research problems set up in chapter 2.1. We differentiated importance of individual contribution (value added) and management expectations towards it. We studied both non-financial contributions which are considered important by management and expectations towards VC investor, which are certainly influenced by



agreements between VC investor and outstanding shareholders, and investor's promises.

We asked companies to estimate the importance of different non-financial contributions for their venture by VC investor directly or using his contacts in the scale 0–5 (0 – unimportant, 5 – very important). Results are presented in table 2.

**Table 2.** Importance of non-financial contributions to entrepreneurs.

Contribution	Number of respondents	Minimum estimate	Maximum estimate	Average estimate	Mode
Access to distribution channels	6	0	3	1	0
Access to (additional) financing resources	4	1	4	3	4
Access to technology	5	0	5	1,4	0
Access to personnel	5	1	5	2,4	1
Access to intellectual property	5	0	5	1	0
Access to research and development activity	5	0	5	1	0
Access to manufacturing tools	5	0	4	1	0
Access to brands and trademarks	6	0	5	1	0
Access to management competence and experience	6	1	5	3,17	3 and 5
Access to new clients	6	0	5	2,17	0
Access to market information	6	0	5	2,17	0
Access to other useful contacts	5	1	5	3,4	3 and 5
Reputation and reliability	6	2	5	3,5	4
Moral support and acknowledgement	5	0	5	1,8	0



On the assumption of table 2 and using average and mode estimate we can conclude that ventures considered reputation and reliability as the most important non-financial contribution. Also access to other useful contacts (business partners, scientists, experts, suppliers, competitors), management competence and experience and additional financing resources were rated highly. An access to different resources was least important: distribution channels, manufacturing tools, IP, brands and trademarks, and R&D activity. The results are as expected because VC is provided by financial investors who usually do not supply such non-financial contributions. Resources are usually provided by corporate investors. A big variance in answers is explained by different VC resources. For example a company which supplied IT solutions for other companies regarded access to resources (technology, personnel, IP, research and development activity) very important because part of the VC originated from IT/telecom company (partly corporate VC). We also found that management competence and experience, market information, reputation and reliability are higher estimated by seed stage ventures (no sales yet, mainly developing of product and business strategy). Seed stage company needs this contribution in order to work out a business plan and create vital business strategy. Help from VC investor is highly appreciated.

Next the results of the actual VC contributions are described.

None of the companies mentioned that they got access to technology, intellectual properties, and R&D. Only one company got access to distribution channels. This result is quite expected as investors were VC funds and a business angel. These contributions are more characteristic to corporate VC. As we can see in table 3 most frequently reputation and reliability, management competence and experience, and finally additional financing resources supplemented with VC investment. On average ventures got 4–6 non-financial contributions, except for one company which mentioned that the only contribution was access to new financing. Probably in that last case the VC investor was not competent and experienced enough in that business field and did not meet venture's needs and expectations. Not surprisingly the VC fund was just established before that investment. In order to find real reasons, this case would need a detailed case study.

**Table 3.** Non-financial contribution to ventures (number of ventures).

Non-financial contribution	Number of cases	Missing answers
Access to distribution channels	1	0
Access to additional financial resources	3	1
Access to technology	0	1
Access to personnel	2	1
Access to intellectual properties	0	1
Access to research and development activity	0	1
Access to manufacturing tools	2	1
Access to brand or trademark	2	0
Access to management competence and experience	4	1
Access to new clients	3	0
Access to market information	2	0
Access to other useful contacts	2	1
Reputation and reliability	5	0
Moral support and acknowledgement	2	2

Next we studied the impact of non-financial contributions to investee firms, and whether VC contributions met ventures' expectations. We assumed that before the fund raising parties agreed on how the VC investor can contribute to the firm in the future. This created justified expectations towards non-financial contributions. We take it as an estimate of VC's (relative) impact (or VC's quality) if the expectations are satisfied. The results of the study are presented in table 4.

Next, access to resources is compared to investee's expectations. We consider it as VC investor's relative impact. If expectations are not met then the impact of contribution was insufficient. It indicates the quality (professionalism) of VC investor to meet the management's expectations (promises). As we saw in table 3, different resources supplemented with provided VC only in a few cases. Most respondents mentioned only 0–2 contributions concerning resources. As we can see from table 4 that actual resources corresponded mostly to expectations. It means that entrepreneurs' expectations toward resources were rather low and VC investors did not promise to

**Table 4.** Compliance of non-financial contributions to the companies' expectations (number of cases).

Contribution	Lower than expected	In accordance with or over the expectations	Missing answers
Access to distribution channels	4	2	0
Access to additional financial resources	3	2	1
Access to technology	0	5	1
Access to personnel	3	2	1
Access to intellectual properties	1	4	1
Access to research and development activity	1	4	1
Access to manufacturing tools	0	5	1
Access to brand or trademark	1	5	0
Access to management competence and experience	4	1	1
Access to new clients	2	4	0
Access to market information	2	4	0
Access to other useful contacts	3	2	1
Reputation and reliability	3	3	0
Moral support and acknowledgement	2	3	1

provide those either. Ventures expected and acquired different resources on a moderate scale. As an exception we would like to point out access to distribution channels, which was contributed only in one case (table 3), but at the same time was said to have failed to meet the expectations in 4 cases out of 6 (table 4). It means that the companies had some expectations/hope concerning access to distribution channels. It is interesting to note that in three companies VC investor also did not justify expectations concerning access to additional financial resources and new personnel. In other words it means that relative impact of these contributions was lower than expected. These two types of resources were also most important for ventures (see table 2). So we can conclude that Estonian VC investors should accumulate this kind of capital in order to meet ventures' expectations towards VC's contribution of resources.



Next we analyse access to knowledge (market information, management competence and experience, client contacts, and other useful contacts) compared to expectations. Four companies (table 3) acquired management competence and experience from VC investor, but on a large scale the impact was lower than expected (table 4). This could be explained by the fact that VC investors in Estonia are mostly young men who have 5–10 years financial sector background but who clearly lack management and business experience. In that sense VC sector is not professional enough in Estonia. What concerns access to new clients and market information, two companies (out of 6) considered it lower than expected/hoped and four ventures were satisfied. Access to other useful contacts was important for companies, but only two ventures acquired it and three (out of 6) investors could not meet the management's expectations. We can conclude that investors promised management advice and other useful contacts that is the most important knowledge for an early stage company but unfortunately the contribution still did not fully meet the expectations.

At last we analysed endorsement benefits. Reputation and reliability were considered as most important contribution of VC investors (table 2). 5 ventures really acquired it, but three ventures noted that it was lower than expected (other three said that it met expectations). We can again explain it with young and inexperienced VC sector whose reputation and reliability is still not high enough.

Supported by the previous analysis we can conclude that companies most often acquired contributions which were most important for early stage ventures, but the impact was still under the expectations. This leads the authors to the conclusion that VC sector is still not professional and experienced enough in Estonia, and the investors fail to live up to their promises. It means that the impact was lower than expected, and ventures were often left disappointed. Despite of that, all companies said that without VC they would not have existed at all (3 seed stage ventures) or their growth would have been lower (3 companies), which means that the overall impact of VC on companies' performance was still positive (probably due to financial contribution<sup>7</sup>).

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<sup>7</sup> It is difficult to differentiate impact of financial and non-financial contributions to venture's performance.



**Table 5.** VC's impact on different strategies and operating areas (number of ventures).

Area of impact	Valid answers					Missing answers
	No impact	Small impact	Remarkable impact	Big impact	Very strong impact	
Business strategy (what product and to whom to supply)	0	3	1	2	0	0
Marketing strategy (how to supply product and at what price)	1	3	0	1	1	0
Financial strategy (investments and financing)	0	0	3	0	2	1
Research and development strategy	1	4	0	0	0	1
Organisation of manufacturing (operations)	3	1	0	0	0	2
Drawing up budget	0	1	2	2	0	1
Improvement of financial management system	0	3	1	1	0	1
Improvement of financial accounting and reporting system	0	3	2	0	0	1
Recruitment	0	3	1	1	0	1
Motivation system	1	1	3	0	0	1
Risk management	0	5	0	0	0	1

Differentiating results for only company which involved business angel we can point out non-financial contributions like access to manufacturing tools, management competence, other useful contacts and reputation/reliability. Last three mentioned contributions fell under the expectations. As all these contributions were important to the venture then we have to admit that business angel did not meet management's expectations.

We also asked ventures to specify VC investor's direct impact to strategies and operating areas on the scale from 1 (no impact) to 5 (very strong impact). Results are presented in table 5.

As can be seen in table 5 VC had strongest impact on creation of financial strategy and drawing up financial budget, but VC investor also had quite remarkable impact on business strategy and improvement of motivation system. The lowest impact was on organisation of operations (manufacturing), risk management and research and development activity. The results were expected because VC investors do not usually have that kind of competence. EVCA survey (Survey of ... 2002: 14–15) also came to the same conclusions when as they found VC investors' impact on financial strategy and budgeting the strongest.

### **2.3. Conclusions**

We have to admit that access to VC is vital for ventures. Impact is stronger if VC investor can also contribute non-financially. Investors with larger shareholding in the venture were more active (hands-on) and management considered it sufficient. In the companies where investors had minority stake, their involvement was rare and management did not regard it as sufficient. If VC investor trusted management and did not want to be involved much, they did not acquire the majority stake. But this level of involvement was still insufficient for early stage ventures.

Ventures considered reputation and reliability as the most important non-financial contributions. Also access to other useful contacts (business partners, scientists, experts, suppliers, and competitors), management competence and experience, and additional financing resources were rated highly. It was found that companies did acquire contributions which were considered most important for early stage ventures, but the impact was still under their expectations.

That led the authors to the conclusion that VC sector operating in Estonia lacks professionalism and experience and investors promise more than they can actually contribute. It means that the non-financial impact was lower than expected and ventures were often left disappointed.

The authors also found that VC had the strongest impact on the creation of financial strategy and drawing up financial budget. Finally, the authors want to add that Estonian VC sector still has a long way to go in order to meet market's needs for non-financial contributions, and early stage ventures seeking financing have to become more competent in selecting investors to create partnership with.

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# **SME POLICY IN LATVIA: MAIN TRENDS AND PROBLEMS**

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## **Abstract**

During transitional economy period Latvia has managed to shift from centrally planned socialist economy to liberal market economy achieving a stable macroeconomic situation characterized by rapid growth rates. At the same time it features high inflation (especially after joining EU), low labour productivity as well as marked regional disparities. The national innovation strengths of Latvia are based on its strong tradition and R&D potential in a range of research fields, well-educated people, its recent move towards wider awareness and promotion of innovation as a crucial source of economic development and dedication to implementation of the Lisbon strategy.

We can't but say that Latvian government has accepted a number of documents to ensure continued growth and transition from a labour-intensive economy to a knowledge-based economy. Aside from the adoption of two key documents aimed at the promotion of innovative activities – National Programme for Innovation (2003–2006) and Development Plan of Latvia. (2004–2006) – by the Cabinet of Ministers in 2003, the new policy documents of 2004/2005 include the Single Economic Strategy for Latvia, annual action plan of the National Programme for Innovation as well as the Law on Research Activity.

As one can notice all these measures do not give proper result.

Here is the brief list of problems that will be covered in the working paper:

- Regional development disparities (employment uneven distribution, energy policy, infrastructure and other issues)
- Incompatibility of educational skills with labour market requirements

- Lack of a favorable legal environment and simplified administrative procedures
- Tax policy for start-up's
- Support of R&D programs
- Financial market development

The working paper consists of three sections. In the first section following topics will be covered: Latvian economy rational/perspective, SME promotion/development. In the second section Latvian institutional framework for entrepreneurship and it's role in SME policy implementation will be discussed. Revealing inefficiencies and current problems possible solutions will be proposed in the last section.

All numerical information and data, except in cases specifically indicated, were received from the Central Statistical Bureau of the Republic of Latvia or from Eurostat.

**Keywords:** *Entrepreneurship, SME-s and Institutional Environment*

## **I. Latvian Economy Perspective; SME Development**

In the first section we will try to get overall impression of macro-economics situation in Latvia, trying to underline main trends and potential problems. That will give us material for more proper research of SME policy implementation in the second section.

Reforms accomplished in Latvia and integration in the European Union has left an impact on the economic development of this country. On the one hand Latvia has achieved one of the highest economic growth rates in the EU. Since 2000 the average annual GDP growth rate has been 7.4% (see table 1.1.), and in 2005 GDP increased even faster – by 10.2%. High growth rates are also expected in 2006 ~ 10.7%. On the other hand Latvia is experiencing negative external labour mobility effect.

Accession to the EU provides Latvia with new opportunities for economic development. Support of the EU funds fosters structural changes in the national economy and helps to reduce social and economic disproportions.

**1.1. Table.** Latvian Economy Main Indicators % Dynamics in 2000–2006.

Indicator	2000	2001	2002 <sup>1</sup>	2003	2004	2005	2006 <sup>2</sup>
GDP	8.4	8.0	6.5	7.2	8.6	10.2	10.5
Unemployment	7.8	7.7	8.5	8.6	8.5	7.4	7.0
Inflation	2.6	2.5	1.9	2.9	6.2	6.9	7.1

The developed National Lisbon Programme of Latvia for 2005–2008 (hereinafter the “Programme”) is a policy planning document, which shows how Latvia will promote growth and employment in the medium-term and how it will implement Integrated Guidelines approved by the Saeima (parliament) in July 2005. In order to achieve the goal during 2005–2008 the annual GDP growth rate should be 6–8% and employment rate should be increased to 65% (of which 61% is for women and 48% for older people). In order to ensure balanced development Latvia plans to continue gradual decrease of the budget deficit, which will also contribute to a decrease in the current account deficit. Gross domestic expenditures on research and development (R&D) have to grow from the present 0.38% of GDP to 1.1% of GDP by 2008. The Programme points out five main economic policy directions to reach the Lisbon goals in Latvia, namely:

- Securing macroeconomic stability
- Stimulating knowledge and innovation
- Developing a favorable and attractive environment for investment and work
- Improving education and skills

As one can notice the aims have been stated correctly, however their implementation is deterred by a number of significant “hidden” factors that influence indirectly. And therefore there is need for thorough research.

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<sup>1</sup> Central Statistics Bureau has changed methodology for calculating main indicators.

<sup>2</sup> Projected values.

## Securing macroeconomic stability

Latvia has a goal of maintaining a stable macroeconomic environment, which is a necessary precondition to ensure growth and employment. At present, the comparatively high inflation and imbalance of the foreign sector must be carefully assessed. The comparatively high inflation negatively affects the business environment, reducing competitiveness of the national economy. Besides, it can be an obstacle to the introduction of the Euro even in 2010. The high current account deficit of the balance of payments is a risk factor, which may negatively affect the volume of domestic consumption in the future due to sudden changes of financial flows caused by various reasons. In the medium-term it is forecasted that the current account deficit level may decrease slightly, mostly due to faster export growth, stimulated by structural reforms. However, a comparatively high demand for imports will also remain, which will be determined by further modernization of the national economy and an increasing openness of the economy.

Monetary policy possibilities to restrict domestic demand under a fixed exchange rate regime are rather limited, because the inter-target and operational target of monetary policy is maintenance of the national currency rate at a fixed level. Latvia is an open economy country, where an increase in domestic demand encourages increase in imports. The comparatively high share of loans granted in foreign currencies in the overall credit structure, as well as the relatively easy access of banks to foreign resources limit the effectiveness of instruments available for the Bank of Latvia.

In implementation of fiscal policy, a prudent permissible amount of the total budget deficit and rational budget spending directed to growth will be observed.

From the Central Statistical Bureau of Latvia publications we can derive that current rapid GDP growth is mainly due to construction, transport and communication sector growth. Financial sector growth is derived from credits for physical persons (currently total volume more than 4 billions). Lack of high technology products won't let to keep up stable (6–8%) GDP growth in the mid-term period.



## **Stimulating knowledge and innovation**

Essential drawbacks, hindering structural changes, are low public and private sector investments in research and development, a poorly developed innovation system, incompatibility of the education structure with long-term labour market requirements, a low level of Internet availability, non-introduced electronic signature, which is one of the main obstacles to e-commerce development.

The market economy, setting down new requirements for professional skills, develops faster than the adequate professional and higher education programmes. Thereby a discrepancy between the labour market's demand and the current education supply exists in several professions. Distribution of students by thematic fields of studies does not correspond to the needs of the national economy and labour market changes. Co-operation between the education establishments and employers is insufficient.

A lifelong learning system has not been established in Latvia, which would increase the opportunity of the population to adapt to the conditions of a changing labour market. There is a shortage of professional orientation services in the basic stage of education.

Adaptation of the first-year students in the professional education establishments is incomplete and awareness of the opportunities for education as well as further education is insufficient. The number of students who do not graduate or do not achieve a professional qualification is relatively large.

Professional skills and further education opportunities of teachers are insufficient. Teachers and academic staff become old. The number of new teachers and academic staff with a scientific degree decreases. The low wages of teachers do not encourage involvement of young teachers into education. Preparedness of medium-generation teachers in bilingual education is insufficient.

## **Formulating macroeconomics policy**

In order to maintain macroeconomic stability in such hefty situation a number of measures are proposed:

- Comply consistently with the fulfillment of the Maastricht fiscal criteria in Latvia and ensure gradual reduction of the government budget deficit;

- Introduce medium-term (3–5 years) budget planning and strategic planning in the ministries and, in accordance with it, to base budget formation on financing the action of policy goals and results;
- Promote concerted increase of wages and labour productivity in order to prevent additional economic instability, at the same time taking into account the consequences of inflation;
- Do not hasten Latvia's accession to the Euro zone.

## **II. Latvian institutional framework for entrepreneurship**

Entrepreneurs – people who start businesses and make them grow – are essential agents of change in the process of transition from a centrally planned to a market economy. They are the catalysts of growth, marrying capital, innovation and skilled people.

“There is no standard definition of SMEs that is followed by all countries. However, common criteria are: micro-enterprises, up to 10 people; small enterprises 10–50 people, annual turnover up to EUR 7 million, fixed assets not exceeding EUR 5 million; medium enterprises 50–250 people, annual turnover up to EUR 40 million, fixed assets not exceeding EUR 27 million.”<sup>3</sup>

The policy framework for SME development should be based on a detailed knowledge of the problems and constraints that entrepreneurs are facing. For example, a survey undertaken in Latvia in 2002 identified key constraints for start-up entrepreneurs as:

- Lack of finance (33 %)
- Taxes and institutional environment (29 %)
- Marketing problems (17 %)
- Lack of adequate premises (9 %)
- Labour (6 %)
- Machinery and technology (4 %)
- Racketeering and organized crime (2 %).

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<sup>3</sup> Journal of the European Commission', Commission Recommendation of 3 April 1996 concerning the definition of SMEs.

We will use this survey result as a benchmark for our further investigation.

### **Developing a favourable and attractive environment for investment and work**

Conditions to ensure a conducive environment for investment and work are improving every year: obstacles to EU internal market freedoms are basically eliminated. Competition is strengthened and liberalization of monopoly sectors has commenced. The main problems hindering business development in Latvia, especially SME, are encumbered with the funding receipt, various administrative obstacles, lack of adequate information, and shortage of a skilled labour force. Guarantee and investment instruments have not been sufficiently developed yet. Latvian enterprises working with EU directives on quality, lack information on product standards and new production methods. Product quality assessment instruments are not available in Latvia.

Only minor progress is observed in the improvement of the state road network. However, road deterioration is high and the carrying capacity of transport network is insufficient in several segments.

Economic activities in the regions outside Riga increase at a much slower pace than in Riga and its neighborhood. One of the reasons is due to slow administrative territorial reform; there is a large number of economically and administratively weak local governments, unable to ensure the provision of all municipal functions, which continue to exist in Latvia.

In the Programme, the following main tasks have been set as priority directions for the creation of a favourable and attractive environment for investment and work in 2005–2008:

- Promote entrepreneurial culture, lessen administrative obstacles and burden, create a supportive environment for SME;
- Strengthen the supervision of competition and ensure effective competition in public services;
- Improve and develop transport infrastructure, increase the number of connections with other European infrastructure networks;
- Speed up administrative territorial reform.



## **Problems of SME**

Enterprise policy is not just a set of programmes. It is a central part of overall economic and national development policy. It needs a body with clear responsibilities to have the proper impact. It needs commitment of people and budget and strategies to maintain and ensure the continuity of the support institutions and programmes.

These are fundamental issues if the vision for growth of SME is to be translated into reality...The attitude of government is more commanding than supporting, this needs to change.

## **Institutional Framework for Entrepreneurship**

According to the Programme we can define the main directions  
On institutionalisation of SME policy:

- I. Institutionalisation of SME Policy and SME Representation
- II. Regulatory Framework and the Informal Economy
- III. Tax Policy for SMEs
- Support Services and Financial Instruments for Entrepreneurship**
- IV. Financial Instruments for Start-ups and SMEs
- V. Advisory Services for SMEs
- VI. Regional and Local Enterprise Promotion

Judging from the defined above we can introduce policy guidelines and recommendations on institutionalisation of SME policy and SME representation. We should also take into account that the rapidly changing global and regional environment has profound impact on SME policy. Entrepreneurship and small business development policies need to react to changing reality by a constant adaptation of strategies and tools. It is policy-making with shifting business circumstances and moving targets. A critical task for the future work will be to monitor the implementation of these guidelines and to formulate amendments where necessary.

## **Policy guidelines**

Ministry of Economics on behalf of government should state and publicly present the policies and implementation strategies, which encourage entrepreneurship and enterprise development, and ensure



that they are seen as a central aim of national development policies. Undertake a practical development strategy for SMEs that coincides complements macro policies. Key actions are:

1. Affirm the importance of the SME sector to economic and social development by making specific reference in national development plans and policy reform programs to the crucial contribution of SME to the goals for entrepreneurship and enterprise development.
2. Create a positive attitude to entrepreneurship across the whole of society, a central theme of SME policy
3. Disseminate the policy widely and publicize the aims and actions planned.
4. Assign clear institutional responsibility for supporting SME development, and for developing SME policies and strategies.
5. Ensure that implementation of policies is monitored and measured.
6. Specify policy priorities for the SME sector and ensure that performance in achieving these is monitored in an open and transparent manner.
7. Ensure that the institutional responsibilities for supporting the achievement of these progress indicators are stated.
8. Make the identification and removal of obstacles to SMEs the priority area for action when formulating policies and support programmes.
9. Ensure that SME representative organizations and SMEs are seen to be supported by relevant state organizations by undertaking joint activities.

Examples of joint activities are:

- Award schemes for entrepreneurs
  - Shared sponsorship of exhibitions/seminars, etc.
  - Joint studies or programmes to announce study results and propose new initiatives
  - Participation at industry/state policy discussions by SMEs.
10. Designate institutional responsibility for SME policy at national, regional and local levels, and ensure clarity in roles in order to avoid duplication or overlapping activities.

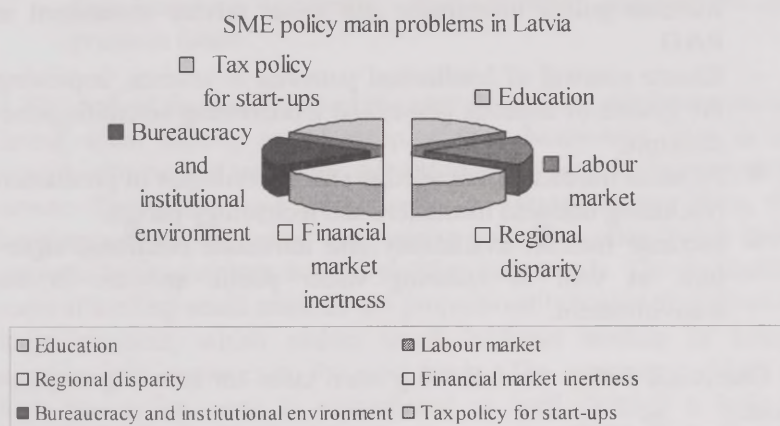


The figure 2.1 shows us possible model of SME policy implementation in the rapidly changing environment due to transition economy processes.

### III. SME Policy Inefficiencies and Problems

In the last section we would to aggregate information joining together all gained results.

Worldwide, small business is now seen as a crucial component of national development and as a key provider of new jobs, contributor to economic growth and regional development. For countries in transition to market economies, the growth of small business is vital. Restructuring existing industry is important, but equally important is the need to maximise the growth of new business.



**Figure 3.1.** SME Policy Main Problems In Latvia.

These are main problems where government should concentrate efforts and regularly monitor to ensure sustainable SMEs foundation grows and development. Let sum up main steps to be taken in order to diminish each of these problems in the mid-term period.

1. For improvement of education and skills the following main tasks should be implemented:

- Strengthen co-operation between public administration institutions, education establishments and employers in order to

adjust the supply of the education system with the needs of the labour market

- Raise cost efficiency in all levels and forms of education
- Improve availability of education at all levels and reduce the number of students who do not graduate or do not achieve a professional qualification
- Increase the availability of lifelong learning and motivation of the population in this area
- Raise the overall level of technological skills and natural science knowledge, improve the professional orientation system and ensure the availability of professional orientation services for all the population in the context of lifelong learning.

To stimulate knowledge and innovation, the main will be as follows:

- Increase public investment and foster private investment in R&D.
- Ensure renewal of intellectual potential in science, improving the system of doctoral grants and modernising scientific infrastructure.
- Promote transfer of knowledge and technologies in production (including business incubators and technology parks).
- Increase Internet availability and introduce electronic signature, as well as ensuring wider public services in the e-environment.

2. One could define the following main tasks for fostering employment:

- Create additional working places to encourage young people not to leave Latvia soon after graduating
- Encourage economic activities in the least developed regions
- Reduce undeclared employment.

3. In order to ensure even regional growth distribution – SMEs development, apart from state policy inevitable changes should be made in:



**Transport**

- Ensure improvement of the state road network's condition and to increase the load carrying capacity of the road surfaces and bridges in accordance with EU requirements (develop Via Baltica, update the East–West railway corridor).
- Improve and develop the quality of international transport corridors.
- Create integrated passenger transportation system (unified and rational network of public transport routes).

**Energy**

- Continue development of the electricity market (to establish the independent distribution system's operator by July 1, 2007; develop the secondary legal acts required for the Electricity Market Law by 2007).
- Sign long-term agreement with Gazprom to ensure stable gas prices in future.

4. The lack of finance is one of the core difficulties entrepreneurs are facing when starting and developing their businesses. Due to the specific situation of transition, this difficulty appears to be even more severe. This is the result of a number of factors, among them, the banking system not being competitive or banks often being more attracted by investments in high-yielding state bonds. The transaction costs of lending small amounts are proportionally higher than those of large amounts, which makes small business lending in Latvia commercially unattractive for most banks. The common problem of high transaction costs is exacerbated as well through a lack of banking staff experienced in risk assessment for small businesses.

In order to help those enterprises that have viable business projects but which do not fulfill the requirements of banks, non-traditional (alternative or hedge) funding institutions should be involved.

Non-traditional financial institutions include a wide range of institutions with different objectives and funding resources. What they all have in common is that the project risk profile which they accept is higher than that of traditional banks and the rate of return may not be remunerated at the same market rate as that of

commercial banks or investment banks. Examples of non-traditional financial institutions are:

- Public schemes extending credit directly to SMEs
- Hedge funds
- Business associations
- Credit guarantee agencies
- Credit co-operatives
- Small business equity funds
- Micro-credit schemes.

Most of the external finance – whether through traditional or non-traditional tools – is undertaken in the form of credit financing (or credit guarantees). We must admit that equity type of financing is still rather an exception, as the sources here are facing a number of obstacles. These are related to:

- A lack of equity culture in Latvia
- The unwillingness of the entrepreneurs to share ownership
- The lack of exit mechanisms
- Inappropriate legal environment for equity finance
- An overall lack of fund managers able to run commercially viable funds in the present local conditions
- The lack of innovative new policies to encourage private equity provision.

5. To deteriorate bureaucracy and simultaneously advance “management” of economics, following e-technologies needs to be implemented:

- E-government. Set of electronics resources that will simplify and speed-up procedure of new enterprises registration, “paper gathering”, information exchange, reduce possibility of corruption etc.
- E-declaration will allow State Revenue Service to process information quicker and more precisely. This will allow in future to introduce obligatory income declaration for physical persons without major increase of employees.

6. To improve motivation and promote financial attractiveness of jobs:

- State Revenue Service of Latvia should switch emphasize from squeezing hefty fines to clarifying peculiar tax policies' characteristics.
- By gradually raising the untaxed monthly minimum and allowances for dependent persons.

Implementation of the planned measure has already started. The untaxed monthly minimum not subjected to personal income tax was increased by LVL 5 in 2005 (from LVL 21 to LVL 26) while the tax allowance for dependent persons was raised by LVL 7.50 (from LVL 10.50 to LVL 18). For 2006, the untaxed monthly minimum is fixed at the amount of LVL 32, while the amount of allowance for dependent persons is LVL 22.

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# USE OF THE INTERNAL RATE OF RETURN BY ESTONIAN PRIVATE EQUITY AND VENTURE CAPITALISTS

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## **Abstract**

This paper analyzes the capital budgeting practices and especially the use of the internal rate of return in Estonian private equity and venture capital firms. Structured interviews with main providers of venture capital and private equity were conducted to collect information about the current practice in Estonia and to highlight topical problems in this field. Evidence shows that internal rate of return is widely used as a capital budgeting technique by Estonian private equity and venture capital firms. They also use positioned IRR as an estimate of the cost of capital figure in project valuations. However, the IRR has many critical deficiencies, which may result in distorted calculations and inadequate decisions.

**Keywords:** *capital budgeting, venture capital, internal rate of return*

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## Introduction

It has been shown (see Dittman *et al.*, 2004) that valuation methodologies have a statistically and economically meaningful impact on the investment performance of venture capitalists. Therefore, proper choice of valuation method and correct application of methodology are rather important.

The aim of the article is to discuss main methodological problems associated with the calculation of internal rate of return (IRR) and investigate the use of IRR by Estonian private equity and venture capital funds in capital budgeting and performance measurement settings. A case study method is used and interviews are conducted to collect the information about current practices.

The paper is structured as follows. The first section gives the theoretical background and discusses main methodological problems with IRR. The second section describes the research methodology and gives some background information about the cases. The last section presents the views of Estonian private equity and venture capitalists about the use of IRR and discusses the problems with application of IRR in venture capital context.

## Theoretical background

The modern corporate finance literature describes an array of different capital budgeting methods including the internal rate of return (IRR), which can also be used in performance measurement settings. Internal rate of return (IRR) is a discount rate, which makes the present value of future cash flows equal to initial investments. We cannot explicitly state a formula to calculate IRR. It can be calculated iteratively from the following polynomial equation:

$$(1) \quad \frac{CF_1}{(1+IRR)} + \frac{CF_2}{(1+IRR)^2} + \dots + \frac{CF_n}{(1+IRR)^n} - IO = 0,$$

where  $CF_t$  – cash flows in period  $t$ ,  
 $n$  – number of periods,  
 $IO$  – initial outflow.

This equation can be solved with the Newton-Raphson's method. In practice, we can find IRR by interpolation or using a spreadsheet program (MS Excel, etc).

Many business practitioners prefer IRR over NPV, although the latter has clear advantages (Graham and Harvey 2001). The reasons are as follows. IRR can be easier to understand because it can be calculated without having to estimate the cost of capital. IRR can be expressed as a percentage of rates of return and therefore is easily comparable to other projects.

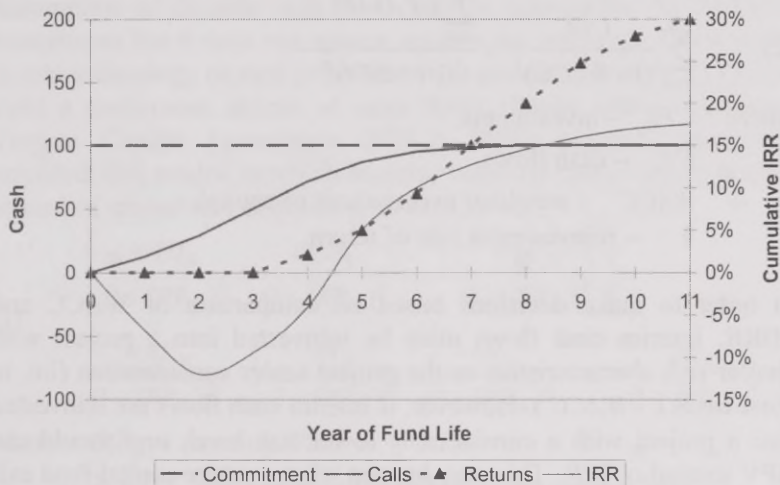
IRR is a concept very widely used in the venture capital setting because it is an input to the so-called venture capital method. According to this method, a venture capitalist determines the amount that must be returned on a proposed investment at some future date to achieve the desired IRR. The VC then calculates a projected terminal value of the company based on "success scenario", i.e. scenario in which the venture meets its performance target. Dividing the required amount by the projected terminal value, the venture capitalist calculates the required percentage of exit proceeds. Dividing the investment by this percentage gives the post-money value of the project. To compensate for the inflated forecast, the required IRR is very high and well above the true cost of capital (see Smith and Smith, 2000).

The managers of venture capital funds must compete with each other to obtain funds from investors. Therefore, they are mostly interested in the relative performance of the fund – that is, the fund is successful if its performance is better than the performance of competitors. The Association of Investment Management Research (AIMR) has deemed the IRR as the most appropriate measure of returns presentation for venture and other private equity investor investments. The European Venture Capital and Private Equity Association (EVCA) and the British Venture Capital Association (BVCA) have also adopted the IRR as the best measure of performance.

It is quite usual that an investor is typically required to fund only a small percentage of its total capital commitment at the outset of the fund. Additional draw downs may happen during the lifecycle of the fund. This enables to minimize uninvested cash the fund holds and maximize the IRR of the fund. In the early years of most funds, the returns are low or even negative due to the small amount of capital

actually invested at the outset combined with the establishment costs, management fees and running expenses (Why and how...2006). The first exits may take place before the fund is closed, and some proceeds may be distributed back to investors even before the whole commitment has been drawn. This results in a *J* curve depicted in Figure 1. Under such scheme, it is unusual for an investor ever to have a full amount of its commitment actually managed by the manager (Ibid).

A high IRR cannot be the only criterion for financing venture capital projects. If the IRR is high due to the wrong interpretation of the model, shareholder value may be destroyed because the venture capitalist will choose wrong projects and make wrong decisions. The problem is especially acute when the cost of capital is close to inadequately calculated IRR.



**Figure 1.** Private equity fund lifecycle (Why and how...2006)

In order to calculate and interpret IRR correctly, one must be aware of its limitations. Some of them are purely mathematical while others are more substantial.

**Reinvestment rate.** The first assumption of IRR is that interim cash flows must be reinvested at the same rates of return. If the assumption does not hold, the measure will overestimate quite significantly the actual rates of return (see Appendix 1, I). Financially

it is more normal to assume the reinvestment with the cost of capital and in practice sometimes the cash flows are not reinvested at all. The bias depends on the timing of cash flows. The more biased are interim cash flows towards the start of the projects, the more biased is the IRR. World famous management consulting firm McKinsey considers this to be the most dangerous problem with IRR (Kelleher, MacCormack 2004).

What can be the solution to the problem? A good alternative to IRR as far as reinvestment problem is concerned is modified rate of return (MIRR). It allows choosing appropriate and more realistic interim reinvestment rates (zero incl.). Usually it is assumed that the reinvestment rate can be equated to cost of capital. MIRR can be derived from the following formula:

$$(2) \quad \sum_{t=0}^n \frac{CFI_t}{(1+WACC)^t} = \frac{\sum_{t=0}^n CF_t (1+k)^{n-t}}{(1+MIRR)^n},$$

where  $CFI_t$  – investments,

$CF_t$  – cash flows,

$WACC$  – weighted average cost of capital,

$k$  – reinvestment rate of return.

In order to make decisions based on comparison of WACC and MIRR, interim cash flows must be reinvested into a project with similar risk characteristics as the project under consideration (i.e. in most cases  $k = WACC$ ). However, if interim cash flows are reinvested into a project with a considerably lower risk level, one should use NPV instead of IRR. This may happen when venture capital fund exit from some of his portfolio companies before the end of the fund does not distribute the received cash right back to the investors (limited partners).

The use of MIRR also enables to avoid the following problem characteristic of IRR.

**Multiple rates of return.** IRR is calculated from a polynomial equation, which according to mathematical rules may have as many solutions as there are changes in signs in the equation. In cases in which investments have a mix of positive and negative cash flows over time, there can be multiple discount rates that make the net



present value of these cash flows equal to zero. The use of staged financing which is quite common in venture capital setting (Sahlman 1990) can produce such a pattern in cash flows.

The problem of multiple IRR has been covered in almost every corporate finance textbook but according to Longbottom and Wiper (1978) it will occur only under very limited and – what is even more important – uncommon conditions. Multiple rates can only occur when later cash outflows are very large relative to initial cash inflows (Longbottom, Wiper 1978). An illustrative example is given in Appendix 1 (II).

What can be the solution to the problem? In capital budgeting context one should use NPV or MIRR instead of IRR to solve the problem.

#### **Continuous cash flows and interest calculation methods.**

Assumption of discrete cash flows may be appropriate for financial investments but it does not appear suitable for corporate investments in new technology or new products which presumably are expected to yield a continuous stream of cash flows (Pogue 2004). European Venture Capital Association (EVCA 2005) suggests using the extended IRR model, in which monthly required rate of return is used instead of annual rate of return (Formula 3).

$$(3) \quad \left[ \frac{OUT_0}{(1 + IRR_m)^0} + \frac{OUT_1}{(1 + IRR_m)^1} + \dots + \frac{OUT_N}{(1 + IRR_m)^N} \right] = \frac{NAV_N}{(1 + IRR_m)^N} + \left[ \frac{IN_0}{(1 + IRR_m)^0} + \frac{IN_1}{(1 + IRR_m)^1} + \dots + \frac{IN_N}{(1 + IRR_m)^N} \right],$$

where  $IRR_m$  – monthly IRR,

$NAV_N$  – net assets value of the unrealized portfolio  
in month N.

In order to compare projects with different frequencies in cash flows, one should use effective annual rate of return. The monthly IRR should be recalculated into annual equivalent rate of return (EAI RR) with the following formula:

$$(4) \quad EAI RR = (1 + IRR_m)^{12} - 1.$$

Monthly IRR is quite a good solution to use instead of annual IRR but it is not the best solution in the private equity setting. The more realistic assumption would be that the cash flows should occur on a continuous basis (Pogue 2004). In order to estimate cash flows on a continuous basis, a continuous discount factor should be used instead of discrete discount ones.

$$(5) \quad \sum_{t=0}^n \frac{CF_t}{e^{\int_0^t IRR_{count}}} = IO,$$

and effective annual IRR can be found by the following formula:

$$(6) \quad EAIRR = \frac{e^{IRR_{count} \cdot n} - 1}{n}.$$

Appropriate discounting methods should be chosen according to the type of cash flows (i.e. continuous cash flows should be discounted with the continuous discount factor and discrete cash flows should be discounted with the discrete discount factor) (Pogue 2004).

If the cash flows come earlier (as in the case of continuous cash flows), the effective annual continuous IRR as well as the value of the project will be higher (see appendix 1.IV):

$$(7) \quad EAIRR_{count} > EAIRR_{comp}.$$

In case of discrete cash flows, the relationship between different rates of return is as follows:

$$(8) \quad MIRR \Big|_{Re\,invest=0} < EAIRR_{count} = EAIRR_{comp} = IRR_{simp}.$$

MIRR with no reinvestment results with the lowest score. The simple interest method assumes the reinvestment of principal amounts but the proceeds will be not reinvested.

**Project selection under investment constraints.** As the commitment of the investors has been limited to a specific amount, the venture capital or private equity fund cannot accept all projects in

which IRR is higher than the required rate of return. In order to select the best mix of projects, one cannot rely solely on the individual characteristics (IRR, NPV) of projects but instead on NPV (or IRR) of the portfolio as a whole. This, however, raises an additional issue – **nonadditivity of yields**. Nonadditivity of yields means that one cannot calculate the fund level IRR based on the weighted average of IRR of individual projects (see Appendix 1, III). Similar concept applies in calculating the pooled IRR for the funds.

**The comparison of IRR with WACC.** Although IRR equation does not require the cost of capital (WACC) for calculation, the latter is needed in order to decide whether to accept a project or not. In case of a typical investment project, the following conditions hold:

$IRR > WACC$  , accept the project;

$IRR = WACC$  , further analysis is needed;

$IRR < WACC$  , reject the project.

These criteria are opposite for financing-type projects (i.e. for projects where cash inflows precede cash outflows). Therefore it is necessary to find out which type of project is under consideration before deciding whether to accept or reject the project. This may not be very clear if cash flows are mixed. The use of NPV or MIRR will enable to avoid this problem.

**The choice of cash flows.** It is questionable whether a minority investor should calculate IRR based on FCFE. The distribution and reinvestment of FCFE is under the control of the majority investor. If a minority investor calculates the expected IRR based on FCFE, but the majority investor decides to reinvest FCFE into project/instruments with a lower risk and return, the expected IRR cannot be achieved. Therefore, we suggest using expected cash dividends instead of FCFE in IRR calculation for a minority shareholder.

Kelleher and MacCormack (2004) state that “the most straightforward way to avoid problems with IRR is to avoid it altogether.” Another way is to make adjustments for the measure’s most dangerous assumptions and act in accordance with the recommendations above.

## Methodology

The analysis is carried out by using the case study methodology. According to the best tradition of case study methodology, “how and why” questions are posed. The most important research questions regarding the topic are:

1. Which capital budgeting techniques are used by venture capitalists to evaluate projects?
2. How do venture capitalists find the internal rate of return of the project?
3. Do venture capitalists modify IRR to deal with theoretical limitation of the model? Why and how?
4. How do venture capitalists find the cost of venture capital? Why?

In order to answer the research questions, structured interviews were carried out among Estonian venture capitalists in 2004–2005 and an additional e-mail survey was carried out in 2006. Each interview lasted about one hour with a representative of a venture capital fund. All funds were managed by professional and experienced management teams. The names of the venture capitalists are not provided because they wished to remain anonymous.

The following part presents the five cases analyzed in the article:

**Case A** is an experienced venture capital and private equity provider in Estonia. It manages two different funds. The first fund is meant for start-up investments and the second is for growth-staged investments. It was one of the first venture capitalists in Estonia. It invests in different sectors in Estonia and abroad.

**Case B** is a small venture capital provider in Estonia, which does not actively invest in business ventures any more. It has a small portfolio of Estonian and foreign ventures.

**Case C** is a venture capital provider in the Baltic States who has made investments in Estonia over the last decade. It has made quite large investments and has quite a large investment portfolio consisting of companies operating in different sectors.

**Case D** is both a venture capital and private equity provider in the Baltic States. It has made quite small investments in different sectors for less than 10 years in Estonia.

**Case E** is a mezzanine capital provider in the Baltic States. Its portfolio consists of quite a few enterprises operating in different



sectors but the investments have been quite large. This case differs considerably from others because it does not provide equity capital.

The reliability of the study can be assured because a case study protocol was used and written notes were taken.

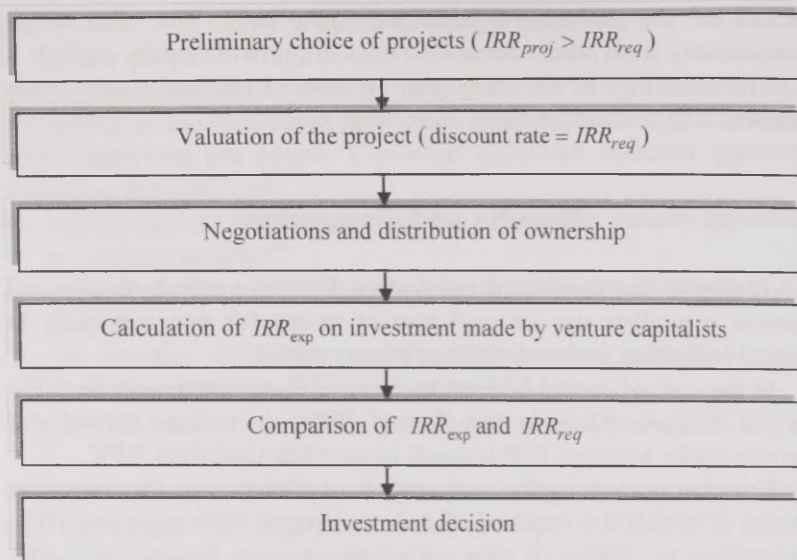
## **Results and discussion**

According to the conducted interviews, Estonian private equity and venture capitalists use internal rate of return for two purposes: in capital budgeting and performance measurement.

In the case of capital budgeting, large U.S. companies prefer NPV or IRR analysis (Graham and Harvey 2001). In venture capital and private equity settings, IRR is much more often used than NPV.

Estonian private equity and venture capitalists use the valuation model in which the required IRR is compared with expected IRR. According to Figure 2, the valuation process begins with the determination of the internal rate of return of the project and the required rate of return. The internal rate of return from the project must be greater than the required one, in order to continue. Then the value of the project is estimated by using the required IRR as the discount rate. The next step is holding negotiations between parties and distribution of ownership after which the expected internal rate of return and the investment made by venture capitalists can be calculated. Venture capitalists accept a project if the required rate of return is lower than the expected internal rate of return. This approach is quite similar to the traditional venture capital method.

In capital budgeting context, venture capitalists face several problems listed in the theoretical part of the article. In our view, two main problems are reinvestment of interim cash flows and choice of the required IRR. The reinvestment problem can be viewed on two different levels: the project level and the fund level. If a venture capitalist is a minority holder, his/her ability to control the reinvestment decision on the project level is limited. The expected IRR is only achieved when the majority holder (usually entrepreneur) reinvests interim cash flows or distributes these cash flows back to the investors to be invested into other projects/instruments, and the reinvestment takes place with the same IRR as the project under



**Figure 2.** Quantitative decision-making process among venture capitalists in Estonia

consideration. Distribution of interim cash flows essentially carries the reinvestment problem to the next level. The reinvestment decision on the fund level is the responsibility of the venture capitalist. If he/she does not distribute the proceeds back to the funders or reinvest them with IRR, the potential net assets value (NAV) will be lower in the future, as well as IRR of the fund. This is not a methodological problem, but should be taken into account when evaluating projects because the potential IRR will be lower.

It is highly questionable whether a fund level IRR can be used as the required rate of return on the project level. First, there is an issue of management fees and other costs associated with the management of the fund. Second, if the fund invests its money in projects gradually, it may have quite large cash balances in the first years, which reduces the fund level IRR. And last but not least – such an approach implicitly assumes that all accepted projects are within the same risk class. According to the performance data of US private equity and venture capital funds from the last 20 years, the realized IRR for seed/early stage funds was 20.5%, later stage funds 13.8%, buyouts 13.3%, mezzanine 9.1% (Private...2006). At the same time,

the required rates of return have been between 36% and 45% for early-stage investments and between 26% and 30% for expansion investments, acquisitions, buyouts, and other later-stage categories (Manigart *et al.*, 2002). Estonian private equity and venture capitalists used positioned IRR as a required rate of return. Commercial banks require 4–8%, mezzanine financiers 15–20%, equity providing venture capitalists 25–35% (Table 1).

**Table 1.** Venture capital pricing issues and return

Case	A	B	C	D	E
Measure of the cost of capital	IRR	IRR	IRR	IRR	IRR
Investment stage	Start-up Expansion	Growth	Rapid growth Exit	Growth	Growth
Required rate of return (%)	30–35	Min 20	Min 30	Min 25	Min 16

Source: Kõomägi, Sander 2006a

The remaining problems are not so important in capital budgeting decisions. Staged financing, especially when used in later stages, could potentially cause the problem of multiple IRR. As stated in the theoretical part, multiple rates can only occur when the latter cash outflows are very large relative to initial cash inflows. Estonian private equity and venture capitalists use staged financing rather seldom (Kõomägi, Sander 2006b), and therefore the problem of multiple IRR does not emerge in most cases. Although Estonian venture capitalists use compound interest calculation methods, they do not apply continuous cash flows in capital budgeting. Therefore the projects are a little bit undervalued. Estonian private equity and venture capitalists do not attach much importance to the technical details of IRR calculation as project selection depends not only on the financial criterion but also on non-financial criteria. According to one interviewee “there is not much difference between the returns of 28% or 32%.”

Some of the problems in capital budgeting also appear during the measurement of fund performance. Performance measurement depends on the structure and the type of fund. The predominant



private equity and venture capital investment vehicle is the independent private fixed-life fund. Since this type of fund has a fixed life, the return on investment is fairly easy to calculate, but problems will occur if there is only one capital call and the money is not invested in the portfolio companies at once (i.e. high cash balances remain). Another problem concerns the distribution of proceeds (Figure 1). This is actually a reinvestment problem. If the venture capitalist does not distribute the proceeds back to funders at once, these should be reinvested. However, even if this does not happen, there is no methodological problem in the calculation of fund level IRR as the NAV will be lower. If the venture capitalist distributes the proceeds back to the funders, they should reinvest the proceeds to earn the IRR presented.

One of the reasons IRR is preferred is that this type of partnership generally has a fixed number of investors and a fixed commitment basis and proceeds cannot be several times reinvested so the cost basis of investment does not increase and decrease as it would with an evergreen or Open-End Fund (Interpretive... 2006).

In most Estonian private equity and venture capital funds there has been only one capital call (i.e. the capital was paid in once at the beginning of the fund). Still, there were also some funds with several capital calls during the fund life (like in Figure 1) and this approach gains more and more popularity among the practitioners. Although neither approach creates any methodological problems in IRR calculation, the latter approach enables to maximize the IRR for the funders.

Results concerning the distribution of the proceeds are mixed. In some funds, cash is distributed back to the funders straight after the disinvestment of portfolio company even if this happens several years before the liquidation date of the fund. Another approach is to make only one cash payment at the moment of fund liquidation. The latter approach does not raise the reinvestment problem for IRR, because the NAV captures the effect. As fund performance is a rate of return to a limited partner (funder), they should reinvest the proceeds with IRR during the investment process. If they do not do that, the actual IRR will be lower than calculated.



## Conclusion

Managers of private equity and venture capital funds face several problems when using IRR as a tool for making capital budgeting decisions or measuring the performance of the fund. While some of these problems can be solved by correct application of methodology (choice of appropriate cash flows and interest calculation methods, comparison of IRR with WACC), others are more fundamental (reinvestment problem).

Despite numerous problems with IRR, it is widely used in practice both for capital budgeting and performance measurement purposes. According to our study, Estonian private equity and venture capitalists use IRR as the main investment criterion for selecting projects. Instead of using the comparison of IRR with WACC, practitioners rely on positioned IRR (i.e. the required IRR depends on the financing stage and instrument).

If an entrepreneur distributes cash back to the venture capital fund and the venture capitalist does not reinvest or distribute the proceeds to the funders, there are no methodological problems with IRR as far as performance measurement is concerned, but in case of distributions the correct IRR can be only achieved if the proceeds are reinvested in the same IRR by the funders.

Fund managers should be very aware of the assumptions and threats concerning the IRR measure before making investment decisions and presenting the rates of returns for the investors.

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## APPENDIX 1.

### An Illustrative Example of Problems in IRR Calculation

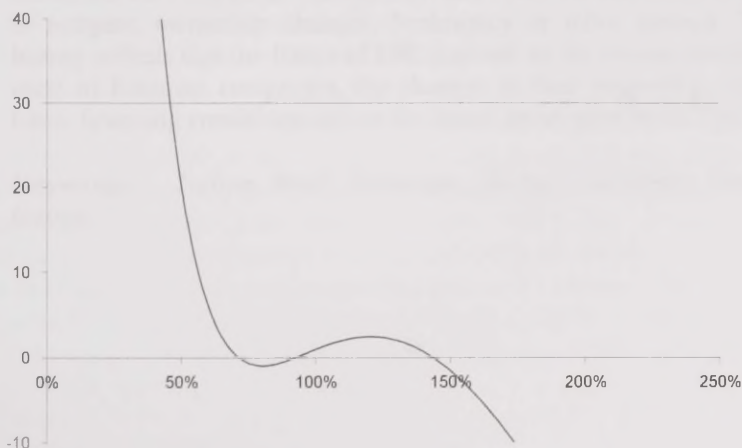
Let us assume that a fund invested in two projects: A and B. In case of Project A, the initial investment was EEK 1.9 million. At the end of Year 1, the cash flow is EEK 1 million and EEK 1.2 million for the second year. Total cash inflow is EEK 2.2 million. In case of Project B, the initial investment was EEK 0.824 million. In Year 1, the project generates a positive cash flow in an amount of EEK 4.8 million, in Year 2 the project needs additional financing in an amount of EEK 10 million. In Year 3, the project was sold for EEK 6.6 million.

#### I. Reinvestment problem

By using the formula 1, we can calculate the IRR for project A. It is 10%. However, this return can only be achieved if the cash flows are reinvested. This can be proved by the following calculations:  $100 \cdot (1.1) + 120 = 230$ , and  $190 \cdot 1.1 \cdot 1.1 = 230$ . If the cash flows are not reinvested, the return is only 7.61% ( $IRR_{actual} < IRR_{accounting}$ ).

#### II. Multiple rate of return

The IRR of Project B was 24.5%. However if the second year cash inflow would have been 5 millions instead of 4.8 millions, the project would have three mathematically correct IRR-s: 71.3%, 92.2%, and 143.3%, neither of which could be the economically correct rate of return.



**Figure 3. Multiple rates of return****III. Nonadditivity of yields**

In order to calculate the IRR for the whole fund, one cannot just use the weighted average of IRR-s due to the nonadditivity of yields. Therefore it is necessary to calculate the fund level IRR based on fund level total cash flows. In our case the weighted average of individual IRR-s would be

$$\frac{824}{824 + 1900} \cdot 24.5\% + \frac{1900}{824 + 1900} \cdot 10\% = 14.41\%.$$

But the fund level IRR is actually 15.12%, assuming that all the interim cash flows were reinvested with IRR itself.

**IV. Continuous cash flows**

If in case of Project A, cash flows are generated continuously instead of once at the end of year, the effective annual continuous IRR (Formula 6) would be 15.43% instead of 10%. If the cash flows are generated monthly, the discrete IRR would be 14.8% instead of 10%.



# LISTINGS, DELISTINGS AND CROSS-LISTINGS ON TALLINN STOCK EXCHANGE 1996–2005

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## **Abstract**

The objective of this paper is to identify the developments on Tallinn Stock Exchange (TSE) from 1996 to 2005 with respect to listing status (listings, delistings and cross-listings) and to determine their possible causes. This paper shows that the listings on TSE were strongly influenced by the TSE crises in autumn 1997 and by the effects of Russian crises on share prices in 1998. Changes in listing status were mostly contributable to changes in capitalization requirements set in Rules or were part of ordinary listing procedure (movement from Free Market to I-list or Main List). Many companies that considered listing their shares on TSE dropped this idea after the crises, but the companies that were already listed became delisted due to mergers, ownership changes, bankruptcy or other reasons. The history reflects that the future of TSE depends on the overall development of Estonian companies, the changes in their ownership structures, financing conditions and on the future developments of TSE.

**Keywords:** *Tallinn Stock Exchange, listings, delistings, cross-listings*

## **1. Introduction**

Tallinn Stock Exchange (TSE) has gone through considerable changes from its establishment in mid 1990s till today. It is a developing market and many companies that listed their shares on TSE when the exchange was established are no longer publicly traded or in some cases the companies have ceased to exist. At the same time some new companies have listed their shares and contributed to the development of the exchange. It poses a question: how and why have the listings on TSE occurred and changed? No previous study has concentrated on these issues, but in order to envision the future developments of TSE, it is important to know and understand them. Therefore the purpose of this paper is to identify listing status changes on Tallinn Stock Exchange during 1996–2005 and to determine their possible causes.

Most of the data presented in this paper has been gathered from TSE web pages, therefore no special references to this source have been made hereon. In order to find clues for changes in listing status many newspaper articles from the Estonian economics newspaper *Äripäev* were used as a starting point. These articles have not been specifically referred to as conclusions drawn are based on several articles. The references to bankruptcies are based on *Ärregister* (Estonian Registry of Companies).

All the companies listed on TSE have been Estonian companies and in this paper their names have been used in the same form as they are written in Estonian (in some instances the references to the activities of the firms were added into the brackets). An interested reader may find the GICS classifications for sector and industry for each listed firm from Annex 1.

This paper has been divided into 7 sections. The second section introduces TSE listing requirements and their changes in time. The third section deals with listings, listing status changes and cross-listings. In order to illustrate the listings data with market information the fourth section investigates the listing status changes in comparison to market capitalization and market index changes. The fifth section concentrates on delisting issues and the sixth section presents some prospects for the future development of the TSE. Main conclusions drawn are presented in section seven.

## **2. Listing requirements on Tallinn Stock Exchange**

Tallinn Stock Exchange (TSE) was set up in Estonia in April 1995 and the first trading day was on 31 May 1996. The trading started with 11 securities from which 5 were the shares of local banks and 6 were obligations issued by the Hüvitusfond<sup>1</sup>. Before that date the necessary legislative acts in the form of Securities Market Act and Investment Funds Act had been approved in 1993 and 1994 respectively and in November 1994 the Central Registry of Securities had started its operation. In Estonia the stock exchange was involved in the privatisations only as an intermediary of bonds that could be bought only for EVPs and a more important role was the creation of a market place where securities of the newly privatised companies could be transacted.

The securities listed on the TSE are divided into the following exchange lists: Main List; I-list; list of bonds; list of shares of funds and Free Market. This paper concentrates only on Main List, I-list<sup>2</sup> and Free Market securities. From 16 Dec 2002 the main requirements set for listing are:

1. An issuer applying for listing in the Main List of shares shall have been engaging in its main field of activity for at least 3 years.
2. Market value (if the market value cannot be assessed, the equity capital of the public limited company) is at least 4 million EUR in case of Main List and at least 1 million EUR in case of I-list listing.
3. At least 25% of the share capital represented by the shares to be listed is held by investors who belong to the public. The

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<sup>1</sup> In Estonia privatisation vouchers (EVPs) were given to people and these could be used in the privatisation process (to purchase land or property including shares of companies under privatisation). Hüvitusfond was set up in 1993 to give monetary coverage to the EVPs. It received portion of the money from privatisations and issued bonds that could be purchased only for EVPs. Hüvitusfond finished its activities in 2003. For details see the homepage of Ministry of Finance of the Republic of Estonia, <http://www.fin.ee/index.php?lang=en>

<sup>2</sup> Before 25 February 2002 the I-list was called Secondary list, but in this paper only the term I-list is used to describe the previously used Secondary list term as well.



aforementioned degree of distribution may be expected to be achieved over a short period after the start of the listing of the shares on the exchange.

From its establishment the listing requirements on TSE have changed. The major changes have been in the required market value of the issuer (point 2 above). Before 01 October 1997 the Main List listing required market value of 100 million EEK (6.39 million EUR) and I-list listing 10 million EEK (0.64 million EUR). From 01 October 1997 till 16 December 2002 the minimum requirement of market value for Main List listing was increased to 300 million EEK (19.1 million EUR)

In addition some changes have been made regarding the distribution of shares (point 3 above). Before 16 December 2002 the Rules required listed shares to be distributed between at least 300 investors in case of Main list and 100 investors in case of I-list listings. From 16 December 2002 till 27 September 2004 at least 15% of the share capital represented by the shares to be listed had to be held by public.

The changes in listing requirements have also lead to amendments of list transfer regulations. Till 16 December 2002 the Listing Committee had the right to transfer the shares of the issuer from the Main List to the I-List in case over the last 6 months:

1. The average market capitalization of the shares was below 200 million EEK (12.78 million EUR); or
2. The number of shareholders was below 1000; or
3. The average number of shareholders, each of them having in their possession shares with the market capitalization below 10 000 EEK, was below 300.

From 16 December 2002 the requirements were simplified and the Listing Committee gained right to transfer the shares of the issuer from Main List to I-list if during the previous 6 months the average market value of the issuer's shares had been below 4 million EUR.

In both periods the Listing Committee had the right to transfer the shares of the issuer from the I-List to the Main List of the exchange in case the opposite was true.

In addition to Main and I-list listing it is also possible to list the shares on the Free Market. TSE enables Free Market listing only if:



1. The company is in compliance with general listing criteria.<sup>3</sup>
2. The issuer has prepared a plan and schedule for bringing the securities into conformity with the listing requirements.
3. Sufficient number of the shares of the company shall be held by investors belonging to the public.
4. Sufficient interest of investors may be expected in trading in the security.

Before 16 December 2002 it was also clearly stated that the approval for trading on the Free Market would be given for a year, except to the foreign issuers. Since that date such a strict requirement has been dropped, but replaced with the listing change schedule requirement i.e. the company must presents its own view of the schedule and steps for listing on Main or I-list.

### **3. Listings on TSE**

From 1996 (the establishment of TSE) till end of December 2005 in total of 33 different companies have listed their shares on TSE during different time periods (see Annex 1 and Table 1 for details). The greatest number of newcomers was in 1996, when in total of 16 companies listed their shares. From these only 5 were initially listed in the Main List (the 5 commercial banks: Eesti Foreksipank, Eesti Hoiupank, Eesti Ühisipank, Hansapank, Tallinna Pank), 2 were initially listed in I-list (commercial bank EVEA and IT company XXL.EE) and the remaining 9 (Norma, Kalev, Saku Õlletehas, Tallinna Farmaatsiatehas, Estiko, Tallinna Kaubamaja, Rakvere Lihakombinaat, Eesti Näitused, EMV) were initially listed on the Free Market. From these Free Market companies only 1 (Tallinna Farmaatsiatehas – a pharmaceutical company) moved from Free Market to Main List during 1996 (see Table 2).

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<sup>3</sup> No liquidation or bankruptcy proceedings initiated in the two years preceding the submission of the application or no permanent insolvency encountered; the management (supervisory board or management board) members of the issuer applying for listing may not have undergone significant changes during the 12 calendar months preceding the date of submission of the listing application.

**Table 1.** New Companies Listed on TSE 1996–2005<sup>4</sup>

Year	Main List	I-list	Free Market	Total new listings
1996	5	2	9	16
1997	2	7	2	11
1998	0	2	0	2
1999	1	0	0	1
2005	3	0	0	3
<b>Total</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>33</b>

Source: TSE, <http://www.ee.omxgroup.com/> & authors

**Table 2.** Transfers between lists on TSE 1996–2005<sup>5</sup>

Year	From Free Market to I-list	From Free Market to Main List	From I-list to Main List	From Main List to I-list	Total movements between lists
1996	0	1	0	0	1
1997	1	4	0	0	5
1998	4	0	0	4	8
2000	0	0	1	0	1
2003	0	0	2	0	2
<b>Total</b>	<b>5</b>	<b>5</b>	<b>3</b>	<b>4</b>	<b>17</b>

Source: TSE, <http://www.ee.omxgroup.com/> & authors

In 1997 11 new companies listed their shares: 7 of them listed initially in I-list (Klementi, Viisnurk, Fakto, Leks Kindlustus, ESS, Harju Elekter, ASA Kindlustus), 2 in Main List (Baltika, Merko Ehitus) and 2 on Free Market (Tallinna Külmoone, Viru Rand). At the same time 5 companies listed initially in 1996 changed their listing: 4 of them (Eesti Näitused, EMV, Norma, Tallinna Kaubamaja) moved from Free Market to Main List and 1 (Estiko) from Free Market to I-list.

In 1998 only 2 companies (Reval Hotelligrupp and Pro Kapital) listed their shares in I-list. Although the number of newcomers was small, 8 of the previously listed companies changed their listing. Namely 4 (Saku Õlletehas, Kalev, Rakvere Lihakombinaat, Tallinna

<sup>4</sup> Years with no new listings excluded from the table.

<sup>5</sup> Years with no transfers between lists excluded from the table.

Külmhoone) moved from Free Market to I-list and 4 (Eesti Näitused, Baltika, Tallinna Farmaatsiatehas, EMV) moved from Main List to I-list. The movement from Main List to I-list of these 4 companies was due to TSE regulations that increased Main List companies' market capitalization requirement 3 times (from 100 to 300 million EEK). This change clearly influenced the preference of Free Market companies to become listed on I-list (capitalization requirement 10 million EEK) not in the Main List.

In 1999 only 1 new company listed its shares in I-list. It was Eesti Telekom a previously 100% state-owned company that listed 49% of its shares after IPO on TSE. In 1999 the movements between lists ceased.

In 2000 only 1 company (Pro Kapital) moved from I-list to Main List after additional shares were issued on TSE. No movements between lists occurred till 2003. In 2003 2 companies (Baltika and Harju Elekter) moved from I-list to Main List. This change was influenced by lowered market capitalization requirement of TSE for listing in Main List (decreased from December 2002 from 19.1 million EUR to 4 million EUR).

Six years after the previous IPO in 1999 3 new companies (Tallinna Vesi, Starman and Tallink Grupp) listed their shares on the Main List of TSE in 2005. These were also the first IPOs conducted according to the changed legislative acts that also follow the EU regulations. Tallinna Vesi (water utility) led the way with its IPO in June. As the price of the share after IPO began to increase considerably (by October increase 62.7% compared to IPO price) the public interest increased. As the Starman's IPO was also in June the public had little time to react. Although Starman's share price did not increase as much after the IPO (increase by December 14%) the expectations before Tallink's IPO in December ran high. Over 9 thousand people opened special securities' accounts and participated in the IPO. However the price of shares had not increased by the end of August 2006, but decreased (it was below the IPO price). After additional share issue in August 2006 the share price began to increase. The future developments on the exchange depend on how the share prices of newly listed companies will change in the future.



If no significant setbacks occur and the prices begin to increase, the high level of interest for new IPOs would be guaranteed<sup>6</sup>.

Tables 1 and 2 show that in time the Free Market has lost its significance as a means for companies for entering the Main List or I-list. After 1998 it has not been used at all. The numbers also indicate that in 1996, when the TSE was established, many companies needed time to adjust to the requirements and did not want to move to the I-list or Main List too quickly. Although the Free Market was intended to be used around 1 year, the 3 companies (Saku Õlletehas, Kalev, Rakvere Lihakombinaat) that moved from Free Market to I-list in 1998 remained on the Free Market over 1.5 years, which also indicates that these companies were not ready for other listings before that or the condition of the market was not suitable. It may also mean that these companies just happened to “go with the flow” in 1996 and might not have been listed, if that decision were made on the following years.

Listing changes are partly contributable to events that occurred on TSE at the time. The biggest changes in investor behaviour took place after TSE crisis. In 1997 the prices of shares on TSE grew rapidly, the number of investors increased, as everyone wanted to profit from the recent share price increases. Some investors began to borrow money to buy more and more shares. By 29 August 1997 the TALSE<sup>7</sup> index (OMXT) reached a peak of 492.27 points (in 3 June 1996 the index started at 100 points). Thereafter the prices fluctuated and in 23 October 1997 came the first significant drop in prices by 15.3%. This was influenced mainly by two factors:

1. Liquidity crisis in big banks – banks could not satisfy their needs in other ways than selling shares.

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<sup>6</sup> On 18<sup>th</sup> May 2006 the shares of Eesti Ehitus (construction and engineering company) were listed in the Main list of TSE and since the IPO, its share prices have mostly been above the IPO price. On 23<sup>rd</sup> October 2006 the shares of Olympic Entertainment Group AS (gambling services provider) were listed in the Main List of TSE and during the first week of trading the price remained above IPO price.

<sup>7</sup> TALSE was a TSE index (based on Paasche index) calculated from 3 June 1996. Since 3 Oct 2005 the index was renamed OMXT. Hereon reference to TALSE has been substituted with OMXT.



2. Articles on foreign press on the weak macroeconomic condition of Estonia that could lead to devaluation of EEK forced some foreign investors to sell their Estonian securities. It also activated currency speculators.

On the following weeks the decline continued: on 23 October 1997 OMXT dropped by 12.5%, on 28 October 1997 by 12.5%, on 06 November 1997 by 14.4%, on 10 November 1997 by 19.4%. The latter decreases were influenced by the factors that initiated the decrease on the 23<sup>rd</sup> but were also magnified by “Asian flu” (financial crisis in Asia) that had negative impact to share prices globally<sup>8</sup>. The drop on the 6<sup>th</sup> November was very closely related to the activities of Estonian banks. They eliminated their repo portfolios (they sold the shares that had been pledged for the loans). As banks gave no new loans to investors for buying shares the prices continued to drop. This boosted panic amongst small investors.

This event had a significant impact on the TSE development on the following years. The drop of public's interest in share dealing decreased the companies' interests of becoming listed on TSE. In spring 1997 more than 25 companies had expressed their interest in becoming listed on TSE<sup>9</sup>. By November 1997 only 7 of them actually had become listed. The rest postponed their listing into the next year, but only a few actually became listed at all. In order to group these potential newcomers the GICS<sup>10</sup> classification of companies was used for determining the sectors. Consumer staples group included 9 potential newcomers like Võru Juust, Lacto, Tallinna Piimatööstus, Tallegg, Tartu Õlletehas, Remedia, Ösel Foods, Orto and Pro Med. None of these companies became listed. Lacto went bankrupt, some got new owners who were not interested in listing (Pro Med

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<sup>8</sup> On 27 October 1997 the Dow Jones even plunged by 7.2%.

<sup>9</sup> This number is based on estimations that appeared in Äripäev at the time. The following companies include the ones for which authors found listing intentions mentioned in articles of Äripäev.

<sup>10</sup> GICS – Global Industry Classification Standard. It was developed by Morgan Stanley Capital International (MSCI) and Standard & Poor's (S&P) to enhance the investment research and asset management process for financial professionals worldwide. See <http://www.msci.com/> for details.

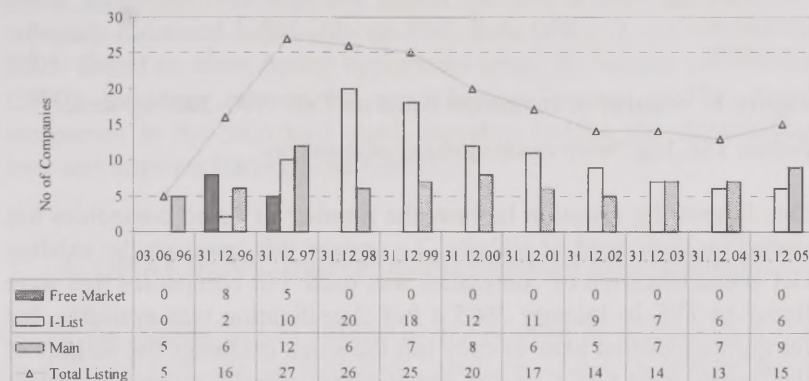
purchased by Magnum Medical) and some admitted that they considered becoming listed due to public pressures during the TSE boom (Ösel Foods). Consumer discretionary group included 5 potential newcomers like Soots Turism, Sangar, Standard, Tallinna Mööblimaja and Hotell Olümpia. Only the last company became listed in 1998 after it had merged with Inn Grupp and was renamed Reval Hotelligrupp. Most of industrials sector potential newcomers like Balti Laevaremonditehas, Eesti Metallieskport (EMEX), Koger & Sumberg Grupp and FCM did not become listed. The latter two merged in 1998 and are currently operating under the name of YIT. The only industrials sector company that became listed in 2005 is the former Hansatee (now known as Tallink). From financials sector potential newcomers Eesti Kindlustuse and AB Elukindlustuse were caught into mergers on Estonian insurance market and energy sector company Alexela Oil and utilities sector company Eesti Gaas did not become listed either.

The negative developments of 1997 were amplified by Russian crisis in 1998. Estonian companies that exported products to Russia were caught into difficulties, because their Russian partners could not pay for the delivered products. This meant significant losses for those Estonian firms and many of them had to rethink their whole export strategy (turn to the West). Crisis affected every 6<sup>th</sup> Estonian exporter and many listed companies suffered losses: Hansapank 60 million EEK, Foreksbank 50 million EEK. These events influenced TSE as well. The OMXT decreased from April till October 1998, whereas the lowest level was reached on 14 December 1998 when the OMXT was 87.1 points i.e. below the starting value in 1996.

Considering these developments it seems odd that 2 companies became listed in 1998. The listing of Reval Hotelligrupp is more rational as they became listed in the beginning of year when the market seemed to be stabilizing, but the case of Pro Kapital can be explained only by their attempt to gain reputation (see delistings in section 5 for details on this company's future on TSE).

From 1998 the companies who entered the TSE knew what they were up against and were prepared to be listed directly on I-list or Main List. They also had the advantage of having seen the downside of listing – the TSE crisis and the effects of Russian crisis on share prices.

Based on the data above, the main reasons for listings, like in other countries, were the added visibility and prestige (similar findings Baker and Johnson, 1990), improved liquidity (Amihud and Mendelson, 1981; Jensen and Meckling, 1976), benefits of listing signals (Booth and Smith, 1988) and information asymmetries (Myers and Majluf, 1984). Better access to additional capital has been also claimed by analysts for pre-1998 period. For an overview of the reasons to go public see Röell (1996).

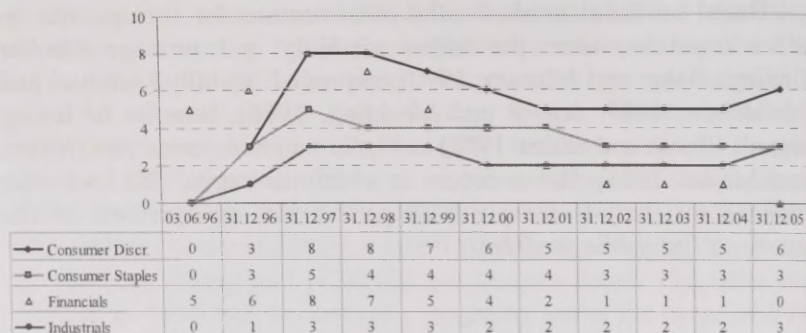


**Figure 1:** Listings on TSE Lists 1996–2005

Source: TSE, <http://www.ee.omxgroup.com/> & authors

During 1996–2005 the number of companies listed in different lists has fluctuated as shown on Figure 1. The biggest number of listed companies was at the end of 1997, when 27 companies were listed. During 1998 and 1999 the number remained quite stable it means that the TSE crisis did not lead to the departure of firms from TSE. Still after 1999 the number of companies began to decrease. The figure also shows, that the number of Main List companies has been more stable than the number of I-list companies. As both the change in total listings and I-list listings is connected to delistings this issue is analysed in more detail in section 5.





**Figure 2:** Number of companies listed on TSE 1996–2005 by sector <sup>11</sup>

Source: TSE, <http://www.ee.omxgroup.com/> & authors

One interesting question is, how the number of listed companies has varied by their field of activity. To answer this question the existing GICS classification of companies was used. For companies that were listed on TSE in January 2005 a full classification was available, but for companies that have already left the stock exchange the authors of this paper used GICS sector and industry classifications' (effective from 28 April 2006) descriptions. The division of companies is presented in Annex 1. Figure 2 presents an overview of the number of companies listed on TSE by most presented GICS sectors. Figure 2 shows that the number of companies in different sectors has changed quite similarly to the overall number of listed companies (the only exception is financials sector). In the beginning the TSE was dominated by financials sector companies (initially by banks and in 1998 additionally 2 insurance companies and 1 real estate developer were listed). The peak was in 1997 when 8 financial companies (6 banks) were listed. After that year their number began to decrease and by end of 2005 no financial sector companies were listed on TSE. As the decrease is closely connected to delisting this issue will be covered in more detail in section 5.

<sup>11</sup> This figure includes only these 4 sectors, in which more than 1 company operated. The total number of represented sectors was 9 i.e. the figure does not show Health care, IT, Materials, Telecommunication and Utilities.



With respect to cross-listings, there is little to comment, as most of TSE companies are listed only on TSE. The exceptions are Merko (construction company) that has been listed on München Stock Exchange and Frankfurt Stock Exchange since October 1997; Norma that is listed on Frankfurt, Berlin and München Stock Exchanges; Eesti Telekom that is listed in GDR Main List of London Stock Exchange since February 1999; Tallinna Vesi that is listed on Berlin Freiverkehr from June 2005. Hansapank used to be listed on Riga Stock Exchange, but after the Baltic list was created in 2000, the company remained listed only on TSE from which it was delisted in 2005. Based on cross-listing hypotheses tested by Bancel and Mittoo (2000), the main reasons for cross-listings in case of TSE listed companies is the increased stock liquidity (widen the shareholder base and improve trading possibilities).

#### **4. OMXT Index, market capitalization and listings**

So far the discussion has centred on the number of companies listed in different lists, but an important questions is how important have these companies been with respect to market capitalization. One way to look at the development of the share prices and the market capitalization is to compare the development of the OMXT index and the Herfindahl (HF) index of market capitalization (Martin, 1993).

The comparison (given on Figure 3) illustrates the difference in the size of the listed firms on TSE and the degree of concentration in it. As can be seen from Figure 3, in the first years after the market was opened for trading, the HF index and OMXT index moved into opposite directions, which clearly indicate the active listing activities specific to that period. Also the two crises on TSE (the end of 1997 and summer 1998) are clearly reflected in the development on OMXT index. However, the HF index continued to decline till the end on 1998, which clearly indicates that the crises had instant effect on the share prices, but due to long process of delisting, the effect on market capitalization and concentration was lagged approximately by one year. The developments of the two indexes after the period of crises indicate the impact of rising share prices and declining number of listed firms at the same time.



**Figure 3:** Herfindahl index of market concentration and the number of equally sized firms on TSE in 1996–2005

Source: TSE, <http://www.ee.omxgroup.com/> & authors

## 5. Delistings on TSE

The changes in the number of listed companies in section 3 already indicated that many companies have been delisted from TSE. Table 3 presents an overview delistings from 1996 till 2005.

**Table 3.** Delistings from TSE 1996–2005<sup>12</sup>

Year	Delistings from Main List	Delistings from I-list	Delistings from Free Market	Total delistings
1998	2	1	1	4
1999	0	3	0	3
2000	0	3	0	3
2001	2	1	0	3
2002	1	2	0	3
2004	0	1	0	1
2005	1	0	0	1
<b>Total</b>	<b>6</b>	<b>11</b>	<b>1</b>	<b>18</b>

Source: TSE, <http://www.ee.omxgroup.com/> & authors

<sup>12</sup> Years with no delistings were excluded from the table.

During 1996–2005 18 companies have left the TSE, whereas on average 3 companies were delisted from 1998 to 2002 each year<sup>13</sup>. Only one company was delisted from Free Market in 1998. It was Viru Rand (producer of different fish products), who officially stated that it was not ready to be listed in Main List or I-list (could not fulfil the necessary listing requirements after the expiration of first year trading rights). The economic situation of that company at the time of delisting was otherwise good (it was generating sales and profits greater than on previous year) and they even stated that they might become listed in official lists of TSE in the future. This prospect did not however realize – Russian crisis and the overall financial deterioration of the company made it impossible as in 1999 the company went bankrupt.

All Main List companies that have been delisted were from financials sector: 5 of them were banks (Eesti Hoiupank, Tallinna Pank, Eesti Ühispank, Eesti Foreksbank, Hansapank) and one was a real estate developer (Pro Kapital). The changes in banks' listing have been influenced by the overall banking sector development in Estonia<sup>14</sup>. Tallinna Pank merged with Ühispank and due to that was delisted in 1998. Eesti Hoiupank merged with Hansapank and due to that was delisted in 1998. Foreksbank changed its name initially in 1999 for Optiva Pank and in 2000 for Sampo Pank. As the Sampo Plc became the majority shareholder of the bank, it bought back the listed shares and the company was delisted from TSE in 2002. Similar development happened with Ühispank and Hansapank. Ühispank was taken over by Skandinaviska Enskilda Banken AB, which bought back the listed shares and the company was delisted in 2001. Hansapank was taken over by Swedbank, who also bought back the shares and the company was delisted in 2005.

The biggest delisting scandal of TSE was the case of real estate developer Pro Kapital. It is also the only time, when the TSE has

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<sup>13</sup> From the 1<sup>st</sup> of October 2006 the shares of Rakvere Lihakombinaat became delisted from the TSE I-List.

<sup>14</sup> In the beginning of 1990s over 40 banks were established, whereas by 2000 most of them had ceased to exist: some due to bankruptcy, while others had merged with other banks (due to increased requirements set by the Bank of Estonia). For details see the homepage of the Bank of Estonia <http://www.eestipank.info/frontpage/en/>



punished a company for non-compliance with TSE regulations with delisting. Delisting was initiated by TSE due to repeated delays in information disclosures, disclosure of false, misleading information or partial disclosure of information. The connected persons of the emitent were also found to have made share transactions with the company's shares during prohibited trading periods. Pro Kapital sued the TSE and wanted its position in the Main List of TSE to be restated, but the TSE decision was supported by TSE arbitration board and in September 2001 the company was officially delisted. The scandal lead to the investigation of tax authorities and a court case was initiated against Pro Kapital (accused of tax regulation violation). This court case is still ongoing, but the company itself is still functioning.

3 of the 11 I-list delisted companies were from financials sector whereas two of them went bankrupt (EVEA Pank – bank, ASA Kindlustus – insurance company) and were delisted in 1999. The third company, Leks Kindlustus (insurance company) merged with Balti Kindlustus and left TSE due to that in 2000.

Bankruptcy was also a cause of delisting for one IT company (XXL.EE) in 2002. The companies from consumer discretionary (ESS delisted 1998, Eesti Näitused delisted in 1999, Reval Hotelligrupp delisted in 2000, Fakto delisted in 2001), industrials (EMV delisted in 2000), consumer staples (Tallinna Külmoone delisted in 2002) and materials sector (Estiko delisted in 2004) left the TSE due to changes in ownership. In some cases the listed shares of the companies were bought by foreign companies: ESS majority shareholding bought by Falck A/S, EMV bought by Skanska OY, Reval Hotelligrupp by Linstow International, Tallinna Külmoone by AB Kauno Pieno Centras. In other cases Estonian companies who already were majority shareholders bought the listed shares.

It is clear that the main reasons for delistings have been the mergers and changes in ownership (generally from local to foreign ownership). Many of the mergers have later on turned into ownership changes. This development poses a threat to the future of TSE (see section 6) as the number of local capital based companies is low and decreasing.



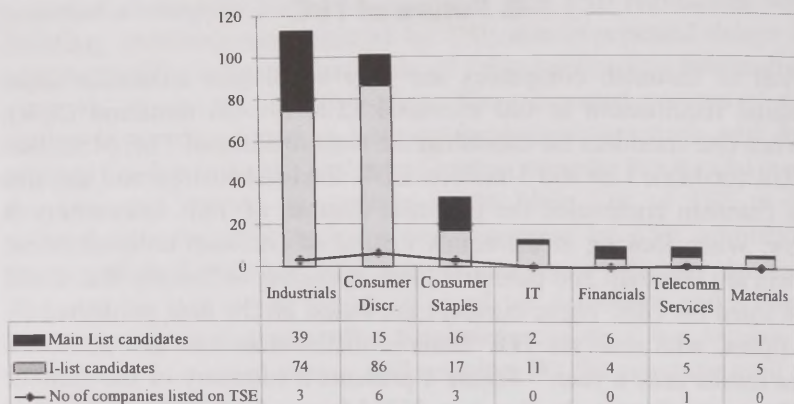
## 6. Future of TSE

Most of Estonian companies are very small (the minimum share capital requirement is 400 thousand EEK or ~26 thousand EUR). When one considers the capitalization requirements of TSE (4 million EUR for Main List and 1 million EUR for I-list listing) and the size of Estonian companies the potential number of TSE newcomers is low. When looking at the equity capital of Estonian unlisted firms, there are less than 300 potential firms operating in Estonia that could be listed on TSE. These numbers are based on the data published by Äripäev, who analyzes TOP firms in different sectors and publishes the results once a year.<sup>15</sup> Figure 4 presents a summary of the number of potential firms to be listed on TSE Main and I-List based on their equity capital in 2004, whereas the sectors have been reclassified to fit GICS classification by the authors of this paper. The results show that the greatest potential can be seen in the consumer discretionary and industrials sectors.

While compared to actual number of listed firms the potential may seem to be high one has to consider that in case there are bigger companies that fulfil the capitalization requirement the problem can be their ownership structure. Many big and successful companies are already owned by international corporations that are already listed on other stock exchanges, which decrease their willingness to list their Estonian operation on TSE.

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<sup>15</sup> These firms are selected on the basis of their turnover as the TOP firms from a specific business activity group. The TOP companies are classified by Äripäev into pharmaceuticals retailers, printing-offices, consigning companies, textile & apparel, furniture manufacturers, automotive retailers, retailers, food producers, construction companies, real estate companies, telecommunication companies, hotels & restaurants, road transportation companies, training services providers, IT firms, building materials producers, timber manufacturers.



**Figure 4:** Potential TSE newcomers and actually listed companies

Source: Äripäev, <http://www.aripaev.ee> & authors

The listing willingness of Estonian companies is also influenced by the possibilities to raise capital from other sources. Currently the firms have preferred banks to listing (smaller companies prefer the financing of the owners of the company) and many companies that are subsidiaries of international firms can get additional capital from their parent companies. It means that the financing needs are not usually the ones that drive Estonian companies onto TSE. Listing is therefore more strongly influenced by other factors like the possibility to increase the visibility of the company's operations, potential of improving its reputation or the owners wish to sell part of their shareholding.

Compared to previous years after successful IPOs in 2005 the interest of Estonian companies to be listed has increased. It means that if the share prices of these newly listed companies' move upward and no significant setbacks occur, many new IPOs could be expected in the coming years. However the previous experience of Estonian companies being taken over by foreign investors may be a warning for both listed and unlisted companies against involving too much foreign capital in their operations, unless it is a necessity for the survival of the company.

## **7. Conclusions**

33 different companies have been listed on TSE from its establishment in 1996 till end of 2005. Most of these companies became listed during 1996–1997. This is closely related to the overall development of TSE. The TSE started its operations on 31 May 1996. By 1997 the exchange was operating successfully – the prices increased and in summer 1997 the TSE experienced a boom (on 29 August 1997 OMXT index reached a peak of 492.27 points). It also meant that the companies' interest in becoming listed was big (over 25 companies publicly expressed their intentions of becoming a listed company). The first major drawback came in autumn 1997 when TSE experienced a first crisis. Due to liquidity crisis of banks, speculative deals, influences of Asian crisis, sale of banks' repo portfolios and the following panic amongst investors the OMXT index decreased by 21 November 1996 to 190.3 points. The crisis was followed by increase that ended in April 1998. The following Russian crisis had an adverse impact on OMXT index and the lowest level was reached on 14 December 1998 when the OMXT was 87.1 points i.e. below the starting value in 1996. These two events decreased the Estonian companies' interest in becoming listed and only 3 companies became listed 1998–1999. After 1999 the first three IPOs were carried out in 2005 i.e. 6 years later.

During 1996–2005 in total of 17 times the companies have changed their listing i.e. moved from one list to another. 10 of these transfers were movements from free market to I-list or Main List and only 7 times the companies moved from I-list to Main List or from Main List to I-list. The latter movements were mostly influenced by changes in TSE Rules (changes in capitalization requirements).

During 1998–2005 18 companies left the TSE. The crises had low impact on delistings. This was also supported by HF index, which showed that the crises had instant effect on the share prices, but due to long process of delisting, the effect on market capitalization and concentration was lagged approximately by one year. Most of the delisting were due to mergers or changes in company ownership i.e. the minority shareholding of small investors was bought by majority owners and the company left TSE. However some companies left TSE due to bankruptcy (XXL.EE, Eeva Pank, ASA Kindlustus), one went bankrupt after delisting (Viru Rand) and one company was



delisted on TSE initiative (Pro Kapital delisted due to violation of TSE Rules).

According to the authors conclusions the future of TSE depends on the:

1. Overall development of Estonian companies – the authors identified around 300 companies that could fulfil the Main List listing capitalization requirement of 4 million EUR or I-list listing requirement of 1 million EUR. The greatest potential can be found in the consumer discretionary and industrials sectors.
2. Ownership structures of Estonian companies – bigger companies that are owned by foreign companies have low interest of listing their Estonian operation. Many delistings on TSE have happened after the majority shareholding went into the hands of a foreign company.
3. Possibilities to use other financing sources – if banks and owners are able to provide sufficient financing at appropriate prices, the interest for listing will remain low.
4. Developments on TSE after IPOs that took place in 2005 – if the share prices of these listed companies continue to increase and no setback on the TSE as a whole will occur, the interest for listing could increase. Especially among companies which want to gain respect and improve their reputation.

This paper did not cover other Baltic Exchanges: Vilnius and Riga Stock Exchanges. As these exchanges have been cooperating for years, an interesting topic for future research could be the listings, delistings and cross-listings in these contexts. This would enable the comparison with TSE. The future research of TSE could also concentrate on the market-effects of listings, listing changes and delistings on the post 2000 period.

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## ANNEX 1

## Listing changes on Tallinn Stock Exchange 1996–2005

Company Name	Changes in listing from	Sector/Industry	Reason for delisting
Eesti Foreksipank*	03 Jun 1996 – Main List 19 Aug 2002 – Delisting	Financials/ Commercial banks	Full foreign ownership
Eesti Hoiupank	03 Jun 1996 – Main List 15 July 1998 – Delisting	Financials/ Commercial banks	Merger with Hansapank
Eesti Ühispank	03 Jun 1996 – Main List 01 Jan 2001 – Delisting	Financials/ Commercial banks	Full foreign ownership
Hansapank	03 Jun 1996 – Main List 30 June 2005 – Delisting	Financials/ Commercial banks	Full foreign ownership
Tallinna Pank	03 Jun 1996 – Main List 30 Jul 1998 – Delisting	Financials/ Commercial banks	Merger with Ühispank
Norma	12 Aug 1996 – Free Market 05 Aug 1997 – Main List	Consumer Discretionary/ Auto components	
Kalev AS	12 Aug 1996 – Free Market 28 July 1998 – I-List	Consumer Staples/ Food products	
Saku Õlletehas AS	12 Aug 1996 – Free Market 27 Jan 1998 – I-List	Consumer Staples/ Beverages	
Tallinna Farmaatsia- tehas AS	15 Aug 1996 – Free Market 07 Nov 1996 – Main List 27 Oct 1998 – I-List	Health Care/ Pharmaceuticals	
Estiko	03 Sept 1996 – Free market 04 Nov 1997 – I-list 01 July 2004 – Delisting	Materials/ Containers & Packaging	Change in ownership
Tallinna Kau- bamaja AS	06 Sept 1996 – Free Market 19 Aug 1997 – Main List	Retailing/ Department Stores	
Rakvere Liha- kombinaat AS	30 Sept 1996 – Free Market 21 Jul 1998 – I-List	Consumer Staples/ Food products	
XXL.EE**	03 Oct 1996 – Main List 22 Feb 2002 – Delisting	Information Technology/ Computer & Peripherals	Bankruptcy
Eesti Näitused	21 Oct 1996 – Free Market 20 May 1997 – Main list 07 May 1998 – I-list 01 Dec 1999 – Delisting	Consumer Discretionary/ Media	Change in ownership
EMV	04 Nov 1996 – Free Market 25 Jun 1997 – Main list 27 Oct 1998 – I-list 08 March 2000 – Delisting	Industrials/ Construction & Engineering	Full foreign ownership

<b>Company Name</b>	<b>Changes in listing from</b>	<b>Sector/Industry</b>	<b>Reason for delisting</b>
EVEA Pank	30 Dec 1996 – I-list 30 March 1999 – Delisting	Financials/ Commercial banks	Bankruptcy
Klementi AS	20 May 1997 – I-list	Consumer Discretionary/ Textiles, Apparel & Luxury Goods	
Fakto	22 Jul 1997 – I-list 30 March 2001 – Delisting	Consumer Discretionary/ Speciality Retail	Change in ownership
Baltika AS	05 Jun 1997 – Main List 07 May 1998 – I-List 17 Feb 2003 – Main List	Consumer Discretionary/ Textiles, Apparel & Luxury Goods	
Viisnurk AS	05 Jun 1997 – I-list	Consumer Discretionary/ Household durables	
Tallinna K��lmhoone	27 Jun 1997 – Free Market 13 Nov 1998 – I-list 22 Feb 2002 – Delisting	Consumer Staples/ Food products	Full foreign ownership
Merko Ehitus	22 Jul 1997 – Main List	Industrials/ Construction & Engineering	
Leks Kindlustus	22 Jul 1997 – I-list 01 Jul 2000 – Delisting	Financials/ Insurance	Merger
Viru Rand	22 Jul 1997 – Free Market 07 Sept 1998 – Delisting	Consumer Staples/ Food products	
ESS	05 Aug 1997 – I-list 17 Dec 1998 – Delisting	Consumer Discretionary/ Diversified Consumer Services	Foreign ownership
Harju Elekter	30 Sept 1997 – I-List 17 Feb 2003 – Main List	Industrials/ Electrical Equipment	
ASA Kindlustus	25 Nov 1997 – I-list 01 Dec 1999 – Delisting	Financials/ Insurance	Bankruptcy
Reval Hotelli-grupp	27 Jan 1998 – I-list 01 Nov 2000 – Delisting	Consumer Discretionary/ Hotels, Restaurant & Leisure	Full foreign ownership
Pro Kapital	01 Sept 1998 – I-List 06 Sept 2000 – Main List 28 Sept 2001 – Delisting	Financials/ Real Estate Management & Development	Non-compliance with TSE Rules

<b>Company Name</b>	<b>Changes in listing from</b>	<b>Sector/Industry</b>	<b>Reason for delisting</b>
Eesti Telekom	11 Feb 1999 – Main List	Telecommunication Services/ Diversified Telecommunication Services	
Tallinna Vesi AS	01 June 2005 – Main List	Utilities/ Water utilities	
Starman AS	28 June 2005 – Main List	Consumer Discretionary/ Media	
Tallink Grupp	09 Dec 2005 – Main List	Industrials/ Marine transportation	

\*Renamed from 21 Jan 1999 Optiva Pank and from 28 Dec 2000 Sampo Pank

\*\* Before 1999 named Pennu CT

Source: TSE, <http://www.ee.omxgroup.com/> & authors



# POSSIBLE IMPACT OF 2<sup>nd</sup> PILLAR PENSION FUND INVESTMENTS INTO VENTURE CAPITAL FUNDS IN LATVIA

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## **Abstract**

SME-s account for the substantial share of Latvian economy being its main driving force. It is essential for government to ensure institutional environment that could support creation and rapid development of SME-s. During the transition period to market economy overall institutional environment was created to assist development of entrepreneurship. In the last years new steps were made to use more sophisticated tools in the area of SME support, e.g. Latvian Guarantee agency (LGA), a state-owned entity implementing the national program of venture capital development was established. LGA activity is aimed at supporting of economic activity of SME-s registered in Latvian Republic, making credit resources more accessible, providing on its behalf security for medium-term and long-term loans for financial institutions registered in Latvian Republic and abroad, which finance these companies. Currently LGA assist also venture capital funds by pooling partial financing for them from the state budget and the European Regional Development Fund. These activities of LGA will clearly improve venture capital market conditions in Latvia and SME-s will benefit from it.

Another important step, which could be undertaken in the future, is adoption of new changes in legislation to allow 2<sup>nd</sup> pillar pension funds investments into venture capital funds. Currently new changes are in the process of adoption in the Parliament (Saeima). As regular contributions to 2<sup>nd</sup> pillar pension funds are mandatory for the majority of Latvian labour force and contribution rate will constantly increase till 2010, these pension funds will face skyrocketing asset growth in the nearest future. Seeking to diversify investment port-

folios and to implement more dedicated investment strategies, pension funds will possibly grow their exposure to alternative investments such as venture capital funds.

The working paper will examine possible impact of Latvian 2<sup>nd</sup> pillar pension fund investments into venture capital funds and the marginal benefit of SME-s due to this. Pension funds will also meet new challenges during the investment process, that is why concept of choosing between different types of venture capital funds in terms of investment attractiveness will also be covered.

**Keywords:** *venture capital, 2<sup>nd</sup> pillar pension funds, SME-s*

## Introduction

SME-s account for the substantial share of Latvian economy being its main driving force. It is essential for government to ensure institutional environment that could support creation and rapid development of SME-s. During the transition period to market economy overall institutional environment was created to assist development of entrepreneurship. In the last years new steps were made to use more sophisticated tools in the area of SME support, e.g. Latvian Guarantee agency (LGA), a state-owned entity implementing the national program of venture capital development was established. LGA activity is aimed at supporting of economic activity of SME-s registered in Latvian Republic, making credit resources more accessible, providing on its behalf security for medium-term and long-term loans for financial institutions registered in Latvian Republic and abroad, which finance these companies. Currently LGA assist also venture capital funds by pooling partial financing for them from the state budget and the European Regional Development Fund. These activities of LGA will clearly improve venture capital market conditions in Latvia and SME-s will benefit from it.

Another important step, which could be undertaken in the future, is adoption of new changes in legislation to allow 2<sup>nd</sup> pillar pension funds investments into venture capital funds. Currently new changes are in the process of adoption in the Parliament (Saeima). As regular contributions to 2<sup>nd</sup> pillar pension funds are mandatory for the majority of Latvian labour force and contribution rate will constantly increase till 2010, these pension funds will face skyrocketing asset

growth in the nearest future. Seeking to diversify investment portfolios and to implement more dedicated investment strategies, pension funds will possibly grow their exposure to alternative investments such as venture capital funds.

Research shows that pension funds can be an important source of financing for venture capital funds. Pension funds account for a substantial part of venture capital investments in UK (Mayer/Schoors/Yafeh 2003), European venture capital funds during the last years experience huge money inflows from US state pensions funds, which have been looking increasingly to the European market (European Venture Capital Journal 2006). Latvian economy is only emerging from transition period and there is no experience of pension funds placing money in venture capital, that is why it is very important to understand the possible impact of such an action and adopt appropriate policies both by government bodies and pension fund managers.

The working paper will examine possible impact of Latvian 2<sup>nd</sup> pillar pension fund investments into venture capital funds and the marginal benefit of SME-s due to this. Pension funds will also meet new challenges during the investment process, that is why concept of choosing between different types of venture capital funds in terms of investment attractiveness will also be covered.

## **1. Overview of Latvian pension system**

Since July 2001 there is a three tier pension system in Latvia. All persons making social insurance contributions are involved in the 1<sup>st</sup> tier. Paid contributions are used for payment of old age pensions to the existing generation of pensioners (pay as you go).

Social insurance contributions of those who participate in the 2<sup>nd</sup> pension tier through chosen fund managers are invested into the financial market and saved for the pension of the specific contributor.

The 3<sup>rd</sup> pension tier ensures the possibility for every individual according to his free choice to create additional savings for his pension in the private pension funds.

Participants of the 2<sup>nd</sup> tier do not have to pay additional social contributions. The total contribution for the pension capital remains unchanged and is redistributed between the 1<sup>st</sup> and the 2<sup>nd</sup> tiers of the



pension scheme. Contributions to the state pension amount to 20% of an employee's gross salary, of which 18 percentage points go to 1<sup>st</sup> tier and 2 percentage points to the funded 2<sup>nd</sup> tier. By 2010 each will receive 10 percentage points. The 2<sup>nd</sup> tier is mandatory for all new labour market entrants and those aged under 30 when the reform was implemented (July 2001) and optional for those aged between 30 and 49 at the launch while those aged 50 and over were not allowed to join.

Until January 2003 there was only one public fund manager for the funds of the 2<sup>nd</sup> tier – the State Treasury, which invested the funds exclusively into the Latvian state bonds and into the deposits of the largest and safest Latvian banks. As of January 2003 private fund managers were involved and currently the participants of the 2<sup>nd</sup> tier can choose their fund manager – public or private – themselves. The private fund managers offer to invest the pension capital also into corporate bonds, equity and foreign securities. Participants of the system are entitled to change their fund manager once a year and investment plans within one fund manager – twice a year. Performance of the private fund managers is supervised by the Finance and Capital Market Commission, but the State Treasury is supervised by the Ministry of Finance.

There exist strict regulations in the field of investing assets of 2<sup>nd</sup> tier. The maximal allowed amount of equity investments in the fund is limited to 30%. At the moment it is prohibited for pension funds to invest into private equity and venture capital.

At the end of October 2006 there were 10 licensed fund managers (including State Treasury), number of 2<sup>nd</sup> tier participants was almost 880 thousands and assets under management were approaching LVL 120 millions<sup>1</sup> (EUR 171 million). Largest fund managers were Hansa fondi, SEB Unifondi and Parex Asset Management.

## **2. Perspectives of 2<sup>nd</sup> tier pension fund market**

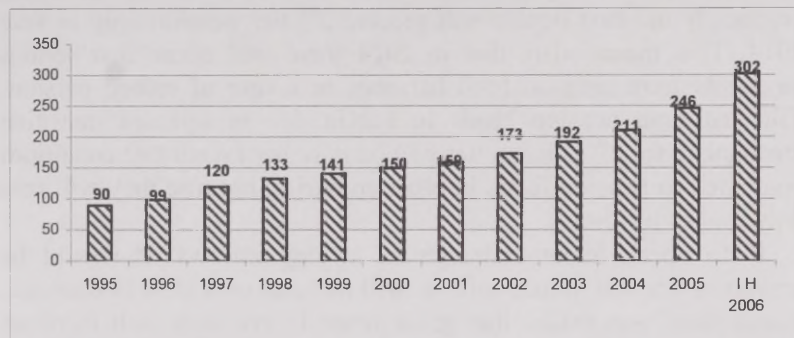
It is quite important to forecast the future size of market for 2<sup>nd</sup> tier pension funds to understand how much funds they could dedicate to venture capital investments. As it was stated before, number of 2<sup>nd</sup>

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<sup>1</sup> Latvian lat (LVL) is pegged to euro. 1 EUR = 0.702 LVL.



tier participants is almost 880 thousands. Each person entitled for participation in 2<sup>nd</sup> pension tier contribute monthly to pension fund a certain ration of his gross wage. Thus, pension funds are sensitive to gross wage changes in economy because gross wage fluctuations will respectively affect new money inflows to pension funds. Assumptions about future changes in average gross wage in Latvia are crucial for further analysis.



**Figure 1.** Average monthly gross wage in Latvia, 1995–2006, LVL<sup>2</sup>

Figure 1 gives information about gross wage at the end of period (in this paper author will refer to gross wage being nominal gross wage) value in Latvia for the past 12 years. Until 2005 gross wage growth was rather balanced, 10% on average. The last two years reveal changes in this trend – due to entering EU and convergence with European economy, as well as due to significant labour force outflow from the country (persons are moving to other EU countries seeking higher wages) one can see rapid growth in wages – 17% in 2005 and high 23% just for the first half of 2006.

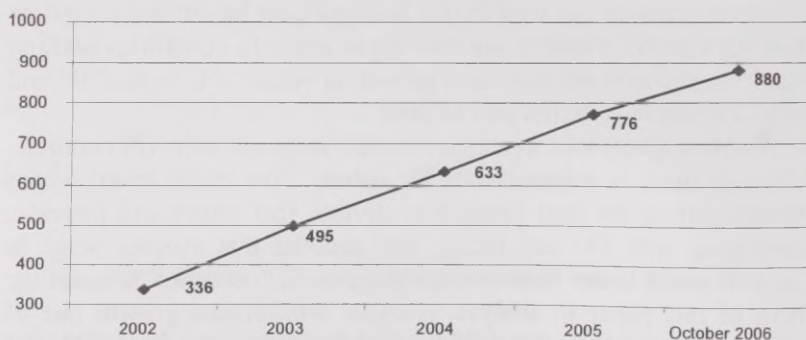
Author expects that trend for average wage growth will continue. Although there is a great room for debate, how much could wages increase during the next years, it is obvious that wages will increase, converging with EU and taking into account that average wage in Latvia is much lower than average wage in EU countries. It is not the focus of this paper to analyse, whether semi-annual growth rate of 23% is sustainable in the medium and long term and favourable for the economy, so for the purposes of our model will use a rather

<sup>2</sup> Source: Latvian Central Statistical Bureau, [www.csb.lv](http://www.csb.lv)

conservative (for current situation in Latvia) gross wage growth rate of 10% yearly, which was observed over the 10-year long period.

Another important notice is that overall there will be only inflows to 2<sup>nd</sup> tier pension funds until year 2014. As only persons aged under 50 (on July 2001) were eligible for participation in the 2<sup>nd</sup> pension tier and persons are normally granted old age pension in Latvia at the age of 62 (when they are also eligible to receive 2<sup>nd</sup> tier pension), practically the first person will receive 2<sup>nd</sup> tier pension only in year 2014. This means also, that in 2014 there will occur first serious payments from pension fund balances in favour of retired persons. Till that time pension funds in Latvia due to selected transition mechanism for 2<sup>nd</sup> pension tier will be in rather favourable conditions compared to pension funds in other countries, because they will face only money inflows.

If to speak about character of money inflows, it should be answered whether money inflows will increase over time or decrease. Assumption was made, that gross wage in economy will increase. Inflows depend on gross wage and number of 2<sup>nd</sup> tier participants, thus it is vital to understand changes in the pool of participants. On the one hand, pool of participants will increase till 2014 because new labour market entrants will be automatically eligible for participation, on the other hand, some people from the pool can loose their job or leave labour market or even move to another country and stop paying taxes and contribution to 2<sup>nd</sup> tier pension savings.



**Figure 2.** Number of 2<sup>nd</sup> pension tier participants in Latvia, 2002–2006, end of period, thousands of people<sup>3</sup>

<sup>3</sup> Source: Latvian 2<sup>nd</sup> tier pensions web page, [www.manapensija.lv](http://www.manapensija.lv)

Statistics show that the overall number of participants increase all the time and should tend to reach number of employed, which is close to 1.1 million of people<sup>4</sup> (data on June 2006). At the same time number of inactive participants is about 10% of all participants. Inactive participants do not pay current contributions, but their previous savings are still being invested till their retirement time. To simplify the model author will treat number of participants as constant at the current level of 880 thousands of people, but will also incorporate 10% of inactive participants into the model.

When major assumptions are made, it is possible to calculate fund flows within 2<sup>nd</sup> pension tier till 2013 (this year was chosen because it will be the last year when 2<sup>nd</sup> tier pension funds will not pay pensions to retired persons). Table 1 show results of calculations. Contribution rate (percent of gross wage) is set by State Funded Pension Law, which regulate 2<sup>nd</sup> tier pension scheme. Starting from 2007 it will increase gradually and reach its maximal value of 10% of gross wage by 2010. Further it will be constant. Wage growth, as it was stated above, is expected to be 10% yearly. Simplifying the model, will assume that wage at the end of 2006 will be 302 (the same as in June 2006). Taking into account number of 2<sup>nd</sup> tier participants and projected wage monthly wage pool can be calculated. From this pool yearly inflow to the 2<sup>nd</sup> pension tier can be calculated, taking into account monthly wages, contribution rate and correction for 10% of inactive participants. End of year 2006 is treated to be the reference point for calculations. 2<sup>nd</sup> tier pension assets under management (AUM) are expected to be LVL 128 millions at the end of 2006. Although it is rather hard to assess future performance of pension funds over the long run, it will be assumed that funds earn on average 5% yearly. It means that every year starting from 2007 total assets under management will comprise of previous year's assets growing by 5% and current year inflow growing by 2.5%.

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<sup>4</sup> Source: Latvian Central Statistical Bureau, [www.csb.lv](http://www.csb.lv)



**Table 1.** Projected inflows to 2<sup>nd</sup> pension tier in 2006–2013

Year	Contribution rate	Wage growth	Monthly wages, mln LVL	Yearly inflow, mln LVL	AUM, mln LVL
2006	2%	-----	-----	-----	128
2007	4%	10%	279	120	258
2008	8%	10%	306	265	543
2009	9%	10%	337	328	906
2010	10%	10%	371	401	1 363
2011	10%	10%	408	441	1 883
2012	10%	10%	449	485	2 475
2013	10%	10%	494	533	3 146

Table 1 shows that 2<sup>nd</sup> tier assets under management will exceed LVL 1 billion by the end of 2010. By the end of 2012 assets will approach LVL 2.5 billion and by the end of 2013 will exceed LVL 3 billion. Substantial monetary assets accumulated within a relatively short period of time will make pension funds the largest institutional investors in Latvia.

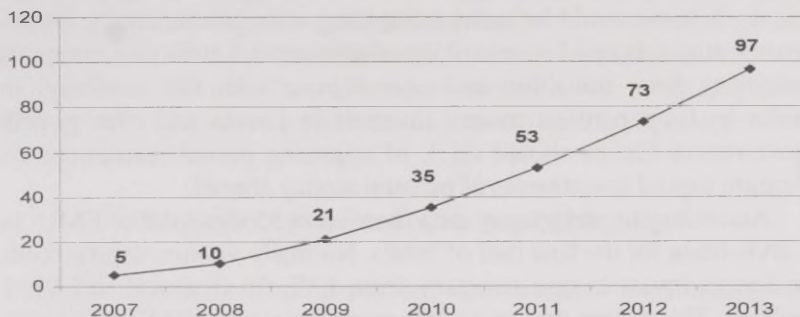
### 3. Pension fund investments into venture capital

New changes to State Funded Pensions Law suggest that 2<sup>nd</sup> tier pension funds could invest up to 5% of their assets into venture capital funds. Taking into account projected value of 2<sup>nd</sup> pension tier assets under management one can approximately find the possible amount of pension fund investments in venture capital.

It should be mentioned that investment policies of pension funds differ in terms of possible return and underlying risk. Some funds invest according to conservative investment policies only in fixed income securities and deposits (the total current market share of such funds in terms of assets under management is about 22%). Funds with balanced investment policy normally invest up to 15% in equity and funds with active policy invest up to 30% in equity. Currently 74% of 2<sup>nd</sup> pension tier assets are invested according to active policy. New changes also increase maximal investment amount in equity up to 50% of pension fund's assets. Thus, active plans and balanced plans could increase their exposure to equity. It is expected that balanced



funds and active funds will use also exposure to venture capital, while conservative plans will not invest into venture capital because risks associated with this asset class are inconsistent with conservative investment strategy. If current distribution among pension funds in terms of investment policy in the market will hold in the future, funds with up to 78% of all assets under management will have exposure to venture capital.



**Figure 3.** Pension fund maximal projected exposure to venture capital funds, 2007–2013, mln LVL

Figure 3 shows growth of pension fund maximal exposure to venture capital funds. Monetary value of such an exposure increases from LVL 5 million in 2007 to LVL 97 million in 2013. Of course, it should be stated, that figures show maximal exposure and, obviously, this maximal limit will not be reached from the very beginning. Probably funds will start to invest small amounts of 1% – 2% of assets to learn how to invest in this new (for Latvian pension funds) asset class. In the future when funds will gain more experience of private equity investments exposure to venture capital could reach maximal amount.

It is of great debate, whether pension funds should be allowed to invest solely in venture capital in Latvia or also in other countries and regions of the world. Currently new changes in legislation do not impose any restrictions for geographical investments into venture capital. Both State Funded Pension Law and changes to it impose restrictions for geographical investments of publicly traded securities, but venture capital investments are not public investments. Here questions arise about the main idea of giving pension funds a possibility to invest into venture capital. It could be either assisting

pension funds investments enlarging possible investment range, or more broad idea of both enlarging investment opportunities and supporting venture capital and also SME development in Latvia. In the current situation part of possible exposure to venture capital could go to foreign venture capital funds, although there is also a number of venture capital funds in Latvia with substantial experience, part of them being subsidiaries of well known foreign venture capitalists with vast experience, and possible return of private equity investments at home could be rather competing with private equity investment returns abroad because of developments in Latvian economy, its emerging from transition and convergence with EU economy. In order to keep pension money invested in Latvia and spur growth government bodies should think of imposing partial restrictions on venture capital investments of pension money abroad.

According to preliminary data there were 55 thousand of EMU<sup>5</sup> in Latvia (data for the first half of 2006). Normally venture capital funds in Latvia invest in one company from LVL 50 thousand to LVL 1 million. This means that up to 100 enterprises could be financed with the help of only pension fund money. Of course, this figure could be achieved only if the funds will invest at maximum and venture capitalists will invest minimal amounts in one company. On the contrary, with the pension money could be funded 5 big investment projects. If we assume that through time average investment amount in one venture capital project will be about LVL 400–500 thousand, even taking into account possible growth of EMU number in the country, by 2013 about 0.3–1% of all EMU could be financed through pension investments into venture capital giving possibility to ensure innovation and development in this sector of Latvian economy.

In the future 2<sup>nd</sup> tier pension funds will meet new challenge during the investment process. As it was stated above, till 2014 funds will experience only money inflows, but after will have also to pay money in favour of retired persons. If now funds are focused on constructing investment portfolios in terms of risk and return tradeoff, in future they should think how to address also liquidity gap and, like banks, match assets with liabilities. As equity instruments have small duration because are available for sale fast, investments into venture

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<sup>5</sup> Source: Latvian Ministry of Economics, [www.em.gov.lv](http://www.em.gov.lv)

capital could become serious instrument of addressing the liquidity gap different from traditional instruments like bonds and deposits. The only problem is that it is rather hard to determine the exact duration of venture capital investment, because venture capitalist may decide to exit private equity investments faster or later than it was initially stated due to market conditions, but some prudent overall assumptions could help determine duration of such an investment.

Overall, the number and monetary value of pension fund investments into venture capital funds will be determined by the success of the first investments in this field. It is crucial to work out methodology for selection of venture capitalists in order to ensure efficient decision making process while investing in private equity.

#### **4. Selection of venture capital funds**

Selecting venture capital funds for investments, some traditional features like fund management profile, investment policy, management company track record and management fees should be taken into account, but these features sometimes should be analyzed from point of view which differ from traditional approach when selecting ordinary mutual funds for investments.

Venture capitalist could be divided into two main groups: “specialists”, who invest only in certain economy sectors, where they have expertise and experience, and “all-rounders”, who invest in companies with future prospects disregarding industry (Jungwirth/Moog 2003). Specialist try to focus on the company selection process and at the later stages just monitor and passively manage their investments, while all-rounders select companies with investment projects being not too complex to understand them and focus more on nurturing – they are deeply involved in the business process and try to support it with all the knowledge venture capitalist has. Thus, first of all it should be identified, to which type belong venture capitalist or its fund and evaluate specific risks associated with each business strategy.

Obviously, specialists, which are less concentrated on the process of nurturing could miss some important developments in the portfolio company and this could affect their investment value negatively. From the point of diversification specialist investments could be also



more vulnerable to system shocks in specific industries or regions where they invest due to their special knowledge. It is important to notice that even having knowledge in some specific fields specialists could not have in depth understanding of the project the portfolio company or its management have, so for specialists it could be relatively much harder to evaluate risks associated with certain projects than for all-rounders, because all-rounders by definition select not very complex investment or development projects. On the other hand, all-rounders being very focused on nurturing possibly could take wrong management decisions that would lead to bad portfolio company performance results.

Venture capitalists normally invest in companies that are in different development stages: initial start-up modes and various stages of the business life cycle. Venture capitalist may provide needed financing to help a company grow beyond a critical mass to become more successful. Investment focus of venture fund (which stage or stages of business cycle are financed) could give guidelines to possible duration of investments, which is rather important for pension fund assets and liability analysis.

In case of illiquid private equity investments it is very important to evaluate venture capitalist's experience of exiting investments. Depending on the investment focus and strategy of the venture firm, it will normally seek to exit the investment in the portfolio company within two to seven years of the initial investment. Initial public offering may be one of the exit ways, exits of venture investments also occur through a merger or acquisition of the company by either the original founders or another company. The expertise of the venture capitalist in successfully exiting its investment could be one of the main selection factors, although it could be rather hard to obtain such an information.

Another problem, which is associated with private equity illiquidity, is appropriate valuation of investment. Venture capitalists try to conservatively value their investments using guidelines or standard industry practices and by terms outlined in the prospectus of the fund. Venture capitalists are usually conservative in the valuation of companies, and pension funds should assess venture fund valuation policy to ensure that investments are valued conservatively indeed, as well as try to obtain periodically also valuation details.



## **Conclusion**

Latvian 2<sup>nd</sup> tier pension funds do not have experience of investing into venture capital funds, thus they are facing new challenges, but also have new opportunities to diversify their portfolios and use more sophisticated investment strategies. Process of venture fund selection could be of vital importance for successful investment, while process itself differs from traditional approach to selection of mutual funds or publicly traded securities due to some specific features of private equity investments. Government bodies should think about imposing partial restrictions for pension fund venture capital investments abroad in order to spur venture capital market growth in Latvia and assist SME development processes in the country. One can expect that pension funds will gain required experience in the field of venture capital investments and through the time will increase their exposure to private equity investments up to maximal amounts allowed in the legislation.

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# THE PROBLEMS OF REFORMING INTERBUDGET RELATION IN THE REPUBLIC OF LATVIJA

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## **Abstract**

**Keywords:** *budget system, local government budgets, spending authority, subsidiarity principle, subsidies, fiscal equalization (horizontal and vertical), budgetary management, fiscal capacity, administrative-territorial and regional reform.*

The system of interbudget relations must be directed towards observing the principle of social equality throughout the territory of the state, the manoeuvrability and efficiency of utilizing budget resources and, finally, the possibility of regulating socioeconomic processes in separate administrative units.

Latvia being a unitary state, its budget system provides for, according to the adopted legislation packages: the implementation of principles of economic independence of administrative-territorial units (local governments), separate creation of their budgets and finally, the need for correspondence between the independence and autonomy of local government budgets and the financing of the most important events from the funds of the state budget.

In this context the choice of criteria for characterizing and classifying interbudget relations is an unsolved methodological problem in research on interbudget relations. Specifically for the interbudget relations in the Republic of Latvia such a criterion can be the percentage of spending by the subnational governments (the spending of local government budget) in the consolidated state budget.

Under the circumstances of the occurring local government reforms the most justified way to solving the task of increasing the role of local budgets is granting the spending authority of government institutions as close as possible to the place where the governed population actually resides, that is on the basis of the principle of subsidiarity.

One of the important directions of interbudget relations reform is the expected results from the completion and the implementation of administrative-territorial and regional reforms. With more than 600 local government units in existence it seems problematic to "follow up" on the effectiveness of funds invested in regional development. The effectiveness of using EU structural funds and the Cohesion Fund in the implementation of investment projects, modernizing the infrastructure, improving the service sector becomes directly dependent on the changes in the regional structural policy, thereby creating real prerequisites for the long-term and uniform development of the territories of the Republic of Latvia.

The interbudget problems of local governments do not only consist of the general lack of financial resources, which is partly determined by the vertical imbalances of the budget system and partly by the weak activity of local governments in adopting reforms. A no less serious problem, as shown by the results of the research, is the structural discrepancy between municipal income and municipal spending. The main aspect of this discrepancy is in the fact that there is a definite slant in the structure of municipal incomes in favour of funds for the horizontal fiscal equalization.

The outlined problems allowed to research and rationalize separate directions of reform of interbudget relations.

It is difficult to find a country in the modern world, which would not experience problems in budget relationships between the "centre" and the territories. Regions always turn out to have grounds to believe that the centre has established with them unfair budget relations, and to insist on their special status, which assumes a more favourable economic regime.

In the most general sense the choice of the model of interbudget relations depends on the organisation of the state (federation, unitary state) and socio-economic situation, which is particularly characterized by the territorial differences in the living standards.



The budget system of Latvia as a unitary state provides for, according to the adopted legislation packages: the implementation of principles of economic independence of budgets of administrative-territorial units (local governments), separate creation of those budgets and finally, the need for correspondence between the independence and the autonomy of local government budgets and the financing of the most important events from the funds of the state budget.

In this context there appears a problem of choosing a criterion, which would allow to evaluate the peculiarities of the used model of interbudget relations in the overall budget system of the state. Latvia's budget system is represented by the state budget – the main and the special budget and multiple local government budgets, which, in turn, consist of the main and special budgets. However, if, for example in 2006, in the state budget the relative proportions of the main and the special budgets in the income part of the consolidated state budget is 74:26, then on the level of local government budgets the same proportion is correspondingly 92:8. This is determined by the functional differences and the significance of the mentioned parts of the budget system: special state budget is a budget of social insurance and support for the whole state, whereas the special budget of the local government consists of separate funds, which are primarily targeted towards environmental measures on a regional level.

The form of organisation of the functioning of the budget system must be directed towards observing the principle of social equality throughout the territory of the state, the manoeuvrability and efficiency of utilizing budget resources and, finally, the possibility of regulating socioeconomic processes in separate administrative units. With this in mind, European Charter of Local Self-Government considers the political and economic independence of local government institutions as an important criterion of society's democratisation and provides that national legislatures should allow the local government institutions to determine and manage a significant part of the state affairs, within the borders of local government's competency and in the interests of the population of a particular region. Therefore, European community does not consider budget services on a local level as something irrelevant to the state affairs. On the contrary, it is exactly the local community as a small, but an important part of the civil society, that is the main subject of local self-government.

In this context the main methodological problem for the study of interbudget relationships is the choice of criteria for their description and classification. Three basic criteria are traditionally used in economic literature: the power of subnational governments to form their own income, and, firstly, on introducing own taxes; the power of subnational governments to manage expenditure; and the percentage proportion of the spending by subnational governments in the consolidated budget of the state.<sup>1</sup>

In our opinion, the percentage of the expenditure by the subnational governments in the consolidated budget of the state should be such a criterion. It is this evaluation that can outline the real effect of the management by the corresponding institutions of local government in conducting an independent budget policy. The first and the second of the criteria mentioned above – the power of subnational governments to create their own income and spending powers – are to an extent mutually interdependent and are formally declared in such acts of legislation of the Republic of Latvia, such as the law “On Budget and Financial Management” and “On Budgets of Local Governments”.<sup>2,3</sup>

It is clear that the legislative limitation of the authority of the local governments in the area of taxation determines the provision of financial assistance to them from the main state budget. The lowering of the amount of taxes gathered by the local governments leads to the decrease in their expenditure. In order for that not to happen, when municipal governments lack income, the lacking funds are transferred from the main government budget and the interbudget equalization fund. Thus, on a local level, such an amount of expenditure, which is necessary for achieving the purposes of socioeconomic policy declared by the central government, is ensured. Meanwhile, it is worth mentioning that research shows that the working mechanism of interbudget relations in the Republic of Latvia does not at all fully satisfy European requirements for the strengthening of the role of

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<sup>1</sup> Шуба В. Модели межбюджетных отношений конкретных стран: общее и особенное – Финансы №10, 2003 г.

<sup>2</sup> LR 1994.gada 24.marta likums “Par budžetu un finansu vadību” (ar grozījumiem, kas izsludināti līdz 20.10.2005.)

<sup>3</sup> LR 1995.gada 29.marta likums “Par pašvaldību budžetiem” (ar grozījumiem, kas izsludināti līdz 20.10.2005.)

local budgets and their high levels of independence. This finding is confirmed by the following negative tendencies. During the period of 2002–2006, while the spending part of the consolidated state budget has increased by 104,1% the expenditure in the cumulated budget of local governments has increased by 64,5% along with the steady decline of their share in the expenditure in the consolidated state budget from 33,5% to 27,1% over the time period considered (Table, Diagram).<sup>4</sup>

**Table.** The Proportion of Spending by Local Governments in the Expenditure of the Consolidated Budget of Latvia (2002–2006, millions of lats) 1 EUR = 0,702804 LVL from 30.12.2004.

	2002	2003	2004	2005	2006
Expenses of Consolidated State Budget (mln.LVL)	1643.2	1826.4	2159.1	2851.0	3353.8
Expenses of Summarized Municipality Budget (mln.LVL)	551.9	604.6	687.5	809.8	908.8
Weight of Expenses of Consolidated State Budget relative to Expenses of Summarized Municipality Budget) (%)	33.5%	33.1%	31.8%	28.4%	27.1%

Under the circumstances of the ongoing reform of local governments, the most justified way to solve the task of increasing the role of local budgets is, in our opinion, to grant spending powers to government institutions as close as possible to the place, where the population actually resides, that is on the basis of the principle of subsidiarity, and delimiting income sources by levels of the budget system in accordance with that principle. This principle is based on the idea that local government institutions are more aware of the needs of the population, which resides on their territory. This is an important condition for creating civil and democratic society.

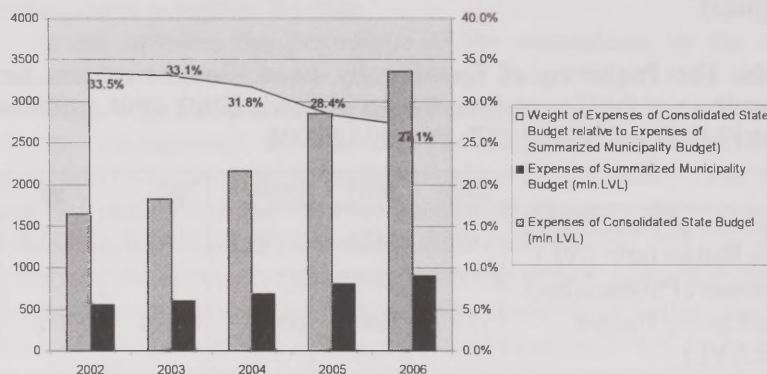
When discussing the necessary conditions for that, it is first of all necessary to assume delimitation of spending powers, taking into account the principle of subsidiarity, as well as the sources of income.

<sup>4</sup> Likumprojekta “Par Valsts budžetu 2006.gadam” paskaidrojumi



This has to be directed to ensuring to a maximum possible extent that spending is covered by income without separating the latter on the state or non-state income.

Diagram. The Proportion of Spending by Local Governments in the Expenditure of the Consolidated Budget of Latvia (2002 – 2006, millions of lats)



Analyzing the structure of the income part of local government budgets for the years 2002–2006, one can see that the proportion of tax incomes, non-tax payments and subsidies from the state budget over the considered time period remains relatively unchanged – 60:10:30. However, the main source of tax income – more than 86% of the total is the income tax from the population that resides at a particular territory. The local government institutions get 75% of that type of tax, which creates the income basis for the local government budget and the remaining part – 25% is directed towards the main state budget. One can note that the higher (all other things being equal) is the amount of tax load on wages; the less possibilities there are for the positive changes of macro- and microeconomic relationships in the economy (investment in the development of manufacturing, decreasing labour costs in the cost of the final product, motivating labour force and creating new workplaces). The level of taxation, which now totals to more than 60% of the value added, is evidence that the peak of the Laffer curve has long been passed and payments to budget will be constantly declining as a result of the fall in the tax base, cessation or decline in the volumes of



manufacturing, continuing movement of the manufacturers towards the black economy and tax evasion. All of this means the fall in stimulating factors for regional development and the solutions towards socio-economic problems of the territories.

With this in mind, in our opinion, granting constant subsidies also deprives the territories of the stimulating factors for development and prudent spending of the granted funds. Subsidies, as a partial participation of the state in covering the spending powers of the local government institutions and their targeted expenditure in local government budgets, do not create objective conditions for encouraging the development of priority industries and are not appropriately controlled. This thesis is confirmed by the investigation of the causes of the steady decrease of the share of expenditure by local governments in the expenditures of consolidated state budget, as well as the unchanged base and size of subsidies over the period of 2002–2006. Naturally, it would be worthwhile in the future to ensure stability for no less than 5 years in the set differentiated norms for transferring income tax from businesses (their profits), which operate on the territories of local governments, together with the decrease of subsidies for the equalization of fiscal capacity.

Granting financial aid has a purpose of strengthening financial independence of the territories and increasing their responsibility for the decisions taken on their level. The creation of a system of interconnected forms of vertical and horizontal budget regulation has to serve this purpose as well. The ways of transferring money must be such that ensure the highest effectiveness for the spending of budget resources and the highest social and economic effect.

One of the important directions of reform of interbudget relations in the Republic of Latvia is the completion and implementation of the administrative-territorial and regional reforms. Today, with more than 600 local government units in existence (with the population size of 2,3 million people) it is problematic to “follow up” on the effectiveness of the use of the invested funds for regional development.<sup>5</sup> The effectiveness of using the EU structural funds and the Cohesion fund in the implementation of the investment projects, modernisation of the infrastructure, and the improvement of the

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<sup>5</sup> Latvijas Galvenajās statistikas rādītāji 2006. – Latvijas Republikas Centrālā statistikas pārvalde, 2006

service industry, is made directly dependent on changes in the structural regional policy, creating in this way the preconditions for the long-term and equal development of Latvian territories.<sup>6</sup>

The possibility granted to Latvia, as a country of European Union, to use budget financing from the structural funds of European Union as part of the implementation of regional policy depends, to a significant extent, on the structuring and optimisation of the administrative-territorial division of the state.

The nomenclature of territorial units of statistics (NUTS) founded by Eurostat is meant to classify the union of uniform territorial units in the statistical representation of the European Union. The nomenclature of territorial units of statistics, which from 1988 is used by the EU legislation, determines the procedure for the accounting and analysis of the effectiveness of use of structural funds by the EU countries. (Council Regulation (EEC) N 2052/88 on the tasks of the Structural Funds: O.J.L 185 of 15 July 1988). In this case NUTS is comprised of the hierarchical classification of five levels – three regional levels and two local levels in the territorial division of the EU countries. Such a classification divides every country of the European Union on the exact number of NUTS-1 regions, which in turn are divided into an integer number of NUTS-2 regions, furthermore NUTS-2 regions are divided into an integer number of NUTS-3 regions. The main objectives of such divisions and the application of NUTS are:

- The introduction, development and harmonisation of regional statistics in the EU countries;
- Socio-economic analysis of regions;
- The structuring of the EU regional policy.

The concept of reform of Latvian local government, which was adopted already in 1993 (the “Administrative-Territorial Reform Law”), reflected in it many principles and assumptions of the European Charter of Local Self-Government, in particular:

- New legislation, which granted local governments legal status was adopted;

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<sup>6</sup> LR 2005.gada 08.decembra likums “Eiropas Savienības struktūrfondu vadība”

- Functions were divided between the types of local governments, as well as between local governments and central management;
- The real estate property of local governments was defined and strengthened into law;
- An independent budget of local governments has been created with the legislative foundation for financing of local government;
- The system of interrelationship between the local governments and central government was defined;
- Civil organisations working with local governments were strengthened;
- The system of education for the personnel from local government was designed.

The conducted administrative-territorial reform envisions unifying district, territory, city and other local governments currently existing in Latvia, that is lowering the amount of local governments and optimising their operations. Transformation in Latvian local governments has been happening from the last decade of the previous century, because the territorial structure that existed in the sixties was directed towards regional territories to a large extent implementing economic management, whereas district territories were adapted to the functions of collective farms and state farms. It should be mentioned that at the end of 2006 envisioned reform is far from completion, although the original implementation terms have long since passed.

In the continuing discussions on the offered approaches to the models of unification very different opinions are proposed: from the “model 102” (9 cities and territories elsewhere) to the “model 82” (city or territory, where more than 25 thousand people reside is preserved, whereas the rest is unified) to the “model 33” (7 large cities and 26 localities). In addition to the mentioned transformations, whose results have not yet become the reality, regional reform, described in the 2002 by the “Regional Development Law”, assumes the creation of the new, second level of local governments. In this case Latvia will be divided in 5 regions (Vidzeme, Kurzeme, Latgale, Zemgale and Riga), new government structures will appear. Representatives from district, territory and other local governments



will be included in these regional institutions together with the representative administration. It is envisioned that then it will be possible to coordinate the authority of the central and local governments, which should be conducive to the process of implementation of the EU regional policy, specified by Latvian legislation.

The envisioned reorganization is financed from the state budget. In addition, local governments, which have united or cooperate with one another, get a single subsidy, which varies from 1% to 5% of their total annual budget.

Financial questions between many small local governments and large volumes of mutual transactions do not allow rational utilization of the already insufficient financial resources. Interbudget problems of local governments are not just about the general lack of financial resources, which is partly due to the vertical imbalances in the budget system and partly due to the weak activity of local governments in conducting reforms. The results of the research show that the structural imbalances between the municipal incomes and expenditures are a no less serious problem. The main aspect of this imbalance is that there's a definite slant in the structure of municipal incomes towards the funds from fiscal equalization.

Fiscal equalization is one of the central problems of the reform of interbudget relations in the Republic of Latvia. The system for the equalization of local government finances is determined by the law "On Equalizing Finances of Local Governments" and envisions proportional division of tax burden between local budgets to eliminate or at least lower the inequality in the possibilities of taxation in different territories as well as to take into account differences in the population by the level of per capita budget income and finally to lower the differences in the subsistence level of the population.

Under the existing system of territorial division in the Republic of Latvia, the problem of horizontal equalization is as difficult as in no other Baltic state. The solution to the problem of providing services and welfare guaranteed by the state to every person is connected to the large differences in the economic situation of various local governments, with different level of expenditures and large differentiation of budget capabilities of local government institutions.<sup>7</sup>

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<sup>7</sup> Ganna Rešina. Latvijas Republikas budžets: vakar, šodien, rīt – Rīga, Turība, lpp.263.



The inequality in the economic development of Latvia's regions is clearly shown by the statistical data of bulletins from 2000 to 2006 – “Macroeconomic Characteristics of Latvia's Regions” as well as by the analysis of fiscal sufficiency of funds for each of the local governments in the process of equalizing their budgets. Thus, for example, in 2006 budget incomes or the so-called “valued incomes” per person were ranging from 408 lats in the richest local governments (Riga district) to 40 lats in Latgale, where unemployment in regions is on average 25%. Besides more than 75% of local governments receive subsidies from the equalization fund, 15% of local governments are financial donors and only 10% are self-sufficient.<sup>8</sup>

Therefore, under the idea of horizontal equalization one needs to imply the elimination of discrepancy between the spending functions of local budgets and incomes, which are delivered on that budget level. The growth of budget incomes and a decrease in the “web” of interrelationships in equalizing minimal fiscal capacity of local governments can be achieved by stimulating business and investment activity. Therefore the solution to the national problem of increasing the quality of life lies in increasing the size of administrative territories as a result of bringing regional reforms to conclusion and the basis for the reform of interbudget relationships. It would be fair to assume that the results of the reform of local self government will be conducive to the formation of budget system and interbudget relations, which would informally conform to all of the clauses of European Charter on Local Self-Government.

## **Conclusion**

A precise and justified delineation of spending powers and obligations together with the maximum possible correspondence of spending to income sources has to be one of the main directions for the reform of interbudget relations.

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<sup>8</sup> Likumprojekta “Par Valsts budžetu 2006.gadam” paskaidrojumi

# CREDIT RISK ADJUSTED LOAN PRICING

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## Abstract

The paper is devoted to the topical problem connected with the necessity of the improvement of credit risk assessment technique in lending to small and medium enterprises, suitable for the Latvian commercial banks, as well as corresponding to the international banking practice and to the recommendations of Basel II. Under modern conditions of lending development to Latvian borrowers one of the directions of credit risk assessment and management improvement is connected with the development of credit risk adjusted loan pricing model. The determination and introduction of the risk adjusted pricing is positive both on the part of banks and borrowers as well as national economy.

**Keywords:** *bank internal ratings, credit risk adjusted loan pricing, expert systems, financial analysis, SME, statistical analysis*

The banks of Latvia invest more than a half of their resources (65.8% as to 1 July 2006) in loan operation<sup>1</sup>. The banks consider them the most profitable. In the middle of 2006 the interest income on the loans issued to non-banks accounted for 49.6% of the aggregate income of commercial banks. A big part of the bank income is represented by lending of the small and medium enterprises (SME). These enterprises play an important role in the development of

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<sup>1</sup> The Financial and Capital Market Commission data.  
<http://www.fktk.lv/>

economy. Statistics show<sup>2</sup> that SME account for 99% of all companies in Latvia and create 63.2% of the national GDP and all together employ approximately 70% of all workforce. Bank loans are of major significance for the functioning and growth of SME. Banks promote the flow of capital from the branches of economy with low efficiency to competitive branches and enterprises. Favourable economic conditions have influenced the successful development of Latvian commercial bank sector and yearly growth of profits. However, gaining profit in the area of lending is almost always connected with assuming a risk.

In the conditions of modern commercial bank lending development the issue of the improvement of the credit risk assessment and management is topical as it is related to the quantification of credit risk and the development, improvement and application of the credit risk adjusted loan price.

According to the Recommendations on the Credit Risk Management issued by the Finance and Capital Market Commission of Latvia on 2 November 2001 the loan price is to be set so that it covers all costs related to the loan and compensates the risk assumed by the bank. Therefore the purpose of loan pricing adjusted to the credit risk is to find the loan price at which the borrower would himself assume the potential costs associated with losing the loan.

The new recommendations of the Basel Commission "International Convergence of Capital Measurement and Capital Standards" (Basel II) are aimed at the improvement of the credit risk assessment. These recommendations allow commercial banks to determine the amount of the necessary equity based on the borrower credit risk that is determined according to the evaluation results of the external or internal rating.

For the big commercial banks of Latvia that are owned by foreign banks it is possible to introduce the internal rating systems of their parent companies and use their experience. Other banks, however, are forced to develop internal rating systems by themselves. It is, of course, possible to acquire a ready system, like S&P or Moody's rating system, for example. These systems, unfortunately, are very

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<sup>2</sup> Report on the Economic Development of Latvia. – Riga: Republic of Latvia Ministry of Economics, July 2006, p.135.



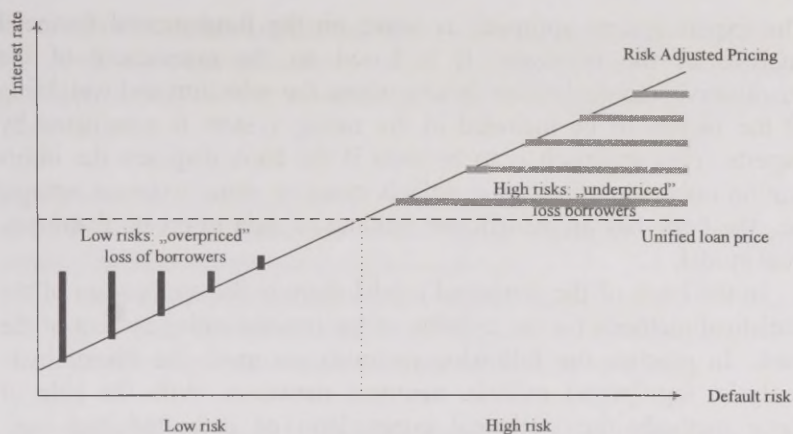
expensive and it is necessary to conduct their adaptation to the local conditions.

At the moment for the SME credit risk assessment local banks mainly use the fundamental analysis of the borrower's financial conditions or the so called traditional analysis. The analysis is based on the calculation of several financial ratios and partial evaluation of the branch where the specific business operates. The financial situation of borrowers and their creditability are described by words. Moreover, the results of the analysis very much depend on the interpretation of the credit manager. It is connected with the fact that the borders of the ratio "norms" are not clearly defined.

The traditional borrower analysis approach has several drawbacks:

- It does not allow for precise quantification of credit risk and determination of the default probability;
- The credit applications are rejected that would have been approved under the differentiating approach – consequently banks lose their profit potential;
- It is very requiring in terms of work and qualification of bank employees;
- The probability of losing the bank customer loyalty is increasing as the awarded loan price is inappropriate to the borrower's credit risk (see fig.1). If the credit terms are too strict, i.e., the unified (slightly differentiated) loan interest rate offered to the customer is higher than the interest rate adjusted to the risk of the specific borrower (in fig. 1 the triangle below the dotted line) the bank risks losing borrowers with the best creditability and smallest risk. Automatically the aggregate quality of the bank loan portfolio will fall as in the loan portfolio the proportion of the bad loans will increase. And vice versa, if the loan interest rate is lower than the one adjusted to the risk (in fig. 1 the triangle above the dotted line), the bank may become appealing to the customers with a relatively bad creditability and as a result the structure of the bank loan portfolio will become worse. Besides, the bank will not receive an adequate pay for the assumed risk and consequently the profitability of the invested resources will suffer;
- The probability increases that borrowers with a good creditability "subsidy" the borrowers with a worse creditability.





**Figure 1.** Credit Risk Adjusted Loan Pricing And Borrowers' Potential<sup>3</sup>

To sum up the potential of the traditional analysis of the assessment of the borrower's financial situation it must be concluded that as a result of the analysis a rather subjective "yes/no" decision is made regarding the issuing or rejection of the loan that does not allow for a precise quantification of the credit risk and determination of the loan price adjusted to the credit risk. Due to these reasons majority of banks are starting to use other methods in their operation.

Quantitative assessment of the corporate borrower credit risk and thus also the determination of the loan price adjusted to the credit risk is possible by using the bank internal rating system. That allows for complex assessment of the financial conditions of the business with the systematized indicator that is expressed in points and refers the company to a specific class of creditability. Commercial banks have already accumulated big experience of traditional analysis that can be successfully used for designing the internal rating system of the bank.

When analyzing the approaches available for establishing ratings in banks three basic groups can be singled out:

- the expert system approach;
- statistical approach;
- combined approach.

<sup>3</sup> Basel II – Meilenstein der Bankenregulierung. Credit Suisse Economic Briefing Nr. 36, 2004, S.15

The expert system approach is based on the fundamental financial analysis of the borrower. It is based on the assessment of the quantitative and qualitative factors where the selection and weighting of the factors to be included in the rating system is conducted by experts. This approach is to be used if the bank disposes the information only regarding some default cases or some external ratings, i.e., the bank has an insufficient volume of data to create the statistical model.

In the basis of the statistical model there is the application of the statistical methods for the creation of the internal rating system of the bank. In practice the following methods are used: the discriminate analysis, logit/probit models, neuronal networks. With the help of these methods the statistical comparison of defaulted and non-defaulted borrowers is made with the aim to identify the factors that predict the default. As a result new standard models are created for determining the borrower ratings. This approach can be used if there is a sufficient volume of data regarding the defaulted and non-defaulted companies. Just a small number of banks fully rely on statistical models. Such models are based on the calculation of credit ratings according to a certain formula that comprises both the quantitative factors – financial ratios, as well as some qualitative factors which have been standardized and expressed in quantity terms that characterize the peculiarities of the borrower branch, its credit history as well as other aspects.

Scholars Treacy and Carey<sup>4</sup>, when carrying out the research of the 50 biggest banks of the USA concluded that banks see four main disadvantages of using the statistical approach for assessing the borrower's credit rating:

- Some important risk factors are subjective, for example, the borrower's management quality;
- It is difficult to obtain the data that would confirm the accuracy of assessing the models;
- The reliability of the models will become obvious only after a certain time, thus the bank may undergo a significant risk up to this time;

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<sup>4</sup> Treacy, W, Carey, M. Credit Risk Rating Systems at Large US Banks, in: *Journal of Banking & Finance*, Vol.24, Nr.1/2, 2000, p.181

- The complex mutual influence determines that there must be different rating models for the assessment of the creditability regarding the borrowers of different branches and geographical regions.

However, the banks that use the statistical approach for the assessment of the borrower credit rating mention the following arguments for the application of the approach:

- with the help of the models consequent ratings can be obtained;
- in a long-term the operational costs will be lowered as less staff for the determination of the rating will be needed.

The combined approach for the determination of the ratings implies a combined application of the statistical approach and the expert system. Moreover, the inclusion of the expert opinion in the determining the borrower's credit rating is limited. Based on the degree of applying the expert opinion two approached can be singled out:

1. for the determination of the borrower's credit rating in the objective segment the statistical approach is used that is adjusted with the expert opinion in the subjective segment of assessment;
2. for the determination of the borrower's rating the statistical approach is used and only the rejected cases or the cases that fall into the grey zone are assessed individually by experts.

Thus impartial assessment of creditability on the basis of the statistical methods is supplemented by the subjective opinion of the experienced experts, i.e., the adjustment of the rating is made based on the analysis of the qualitative factors as well as the branch. For example, the rating points obtained with the statistical method can be adjusted by some points depending on the credit expert opinions. The bank can also set the maximum number of points for the assessment of the qualitative parameters and thus limit the influence of partial factors on the final rating. According to the Basel Committee estimate around 25% of banks use the model when analyzing the creditability of the big businesses.

Theoretically for the creation of the rating model also the shadow-bond method can be used which represents the statistical method that resembles the external ratings for the assessment of the businesses



that have no external rating. That is possible only if the external ratings are available for a statistically significant selection of customers. In practice in Latvia it is not possible to apply the method as the number of companies with the ratings awarded by international rating agencies is very small.

For choosing a specific approach for the determination of the borrower credit rating in a bank it is necessary to conduct the assessment of separate approaches based on their assessment accuracy, cost-efficiency and approval on the part of customers.

The accuracy of the approach used for the assessment of the borrower creditability depends on several factors: the rating precision; completeness, validity and quality of the data, and the expert qualification.

To make the decision about the possibilities of using a specific approach for creation rating systems their comparative analysis can be made regarding the model accuracy (the quality of the classification). That allows determining which of the approaches provides the possibility of making the least imprecise forecast regarding the classification of the loan into the good or bad loans. For the determination of the approach accuracy the error quota (the proportion of the erroneous forecasts) is used<sup>5</sup>:

- type  $\alpha$  errors (errors of type 1) – characterize the percentage of the customers that have later gone bankrupt although initially classified as the “good” ones;
- type  $\beta$  errors (errors of type 2) – characterize (ex post) the later solvent number of customers that had initially been classified as the “bad” ones.

The application of the statistical methods for the creation of the internal rating system is possible only under the condition that the statistically assessable data regarding borrowers are complete, accurate, without contradictions, in a sufficient volume and what is essential – available in an electronic form. Thus the creation of a data base (the internal data base of a bank or a joint interbank data base) is a pre-condition for the creation of the bank internal rating system by using the statistical approach.

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<sup>5</sup> Boemle, M., Gsell, M.: Geld-, Bank- und Finanzmarkt-Lexikon der Schweiz, Zürich 2002, Verlag SKV, S.276



It can be concluded that the worse the situation is in the bank regarding the availability and quality of data, the more it is necessary to use the expert system approach. Even if the data are good it is recommended to use the combined approach and not to refuse fully from the expert knowledge as loan experts take into account the individual characteristics of specific loans and process the qualitative information aspects.

The use of the rating system creation approach based on expert knowledge consequently involves the corresponding qualification of the credit experts. The impartiality of the expert also depends on his professional and human qualification. Moreover, not only the knowledge about the branches analyzed is important, but also the knowledge about people (psychology) is necessary.

In their work experts rely on their previous experience and compare the borrowers to the ones examined before. The subjectivity of the expert opinion reduces the accuracy of the assessment therefore it is necessary to ensure the raising of the expert qualification that will reduce the number of errors in their forecasts and assessments.

The evaluation of the approaches for the determination of the borrower credit rating in banks can also be made based on their cost-efficiency. As a result of the most intensive and effective checking of the borrower's creditability the likelihood of wrong decisions decreases. If in the exit point of the evaluation there is complete information about the borrower, a perfect classification is possible without additional checking of its creditability. When conducting the comparative analysis regarding the accuracy of the rating model two types of errors are found out. When reducing type 1 errors also the costs of loan loss decrease and the less there are type 2 errors the less is the unattained profit. The decreasing of wrong classification means increased checking/control costs. The costs of type 1 errors (loan losses due to the borrower insolvency) are usually higher than the costs that have arisen due to type 2 errors (alternative costs in the extent of the unattained income). As it follows from practice, experts often have comparatively few type 1 mistakes and comparatively many type 2 mistakes. It is explained by the fact that expert assessments are generally too pessimistic and cautious.

To decrease the asymmetry of information and assess the borrower more impartially the closeness to the customer is important as well as a private contact with him. If there is no closeness and the

loan examination process is impersonal the statistical approach is more useful because expert knowledge will not provide any additional benefit in this case. If the customer service is individualized for reaching a better result the bank may use expert knowledge and the closeness of experts to customers by introducing the division of labour. Thus the aggregate economic and branch analysis may be done centrally, however the credit experts may be entrusted to conduct the assessment of the borrower and regionally specific factors (for example, the borrower's management quality) on the spot.

The pre-condition for the application of the bank internal rating system and determination of the credit risk adjusted loan price is not only the classification of the borrowers by their creditability, but also whether the customer approves of the price (including the bank risk premium). The borrower may approve of the checking of his creditability and the related risk premium if he feels sufficiently individually and justly assessed and is generally satisfied with the process of receiving and examination of the loan application.

As it is shown by the foreign bank experience, for the transition to the new Basel II standards banks will need a long-term (not less than 5 – 10 year) statistics of using the bank borrower rating assessment system. This statistics is of huge importance for testing the accuracy of the rating system. Consequently, the timely creation and introduction of the rating assessment system will provide commercial banks with the time needed for the adjustment and piloting of the methods applied as well as the creation of the necessary statistics.

The banks that do not dispose of a well-built risk management system in future have to count with the need to provide for bigger equity, which, in its turn, will negatively affect the prices of the issued loans. However, the use of the differentiated rating system allows banks to implement a flexible pricing policy as well as sound policy for setting limits and creating reserves.

A consequent credit risk adjusted loan price policy provides several advantages to the commercial banks:

- to implement a joint quantitative assessment of the credit risk;
- standardize the price determination process in SME lending;
- determine the loan price that covers the expected loss;
- exclude the situation where the borrowers with good creditability subsidize the borrowers with bad creditability;

- offer the borrower the loan issuing conditions that are adjusted to the customer risk profile;
- serve as a basis for designing an efficient, profit-oriented bank strategy in the area of lending;
- provide basis for efficient use of resources that, in its turn, improves the indicators of the bank cost-effectiveness.

A long period without losses can lead to economically unsound understatement of risk. Too low credit risk premiums reduce the value of the bank as a business. However, if the premiums are too high and the expected losses are overestimated borrowers will be frightened by too high loan interest rates. Yet the client can actively influence his rating and consequently the loan price by ensuring the transparency of his financial and economic operation and acquiring the trust from a bank through a constructive dialogue. Besides also the existence of the loan collateral allows a business to receive better lending terms.

Lending that is based on the credit risk adjusted loan pricing provides for further existence of lending. Besides, from the point of view of the national economy important volume and term transformation of funds is implemented. From the national economy point of view the risk adjusted interest rates are efficient as they reduce the exaggerated cyclic character of lending. The determination of the credit risk adjusted loan price helps prevent the subvention of worse borrowers by better borrowers and thus the maintenance of inefficient companies that interfere with the structural changes in the national economy. Thus the determination and introduction of the risk adjusted pricing is positive both on the part of banks as well as national economy.

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# RUSSIAN IPO

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In 2005 it has been lead nearby 1300 IPO<sup>1</sup> in the world. On their results companies have attracted about \$140 billion in total. This sum has surpassed the means collected in 2004 (\$124 billion). In 2005 the number of primary accommodations in size over \$500 million was nearby 60, while in 2004—44. In Russia market of IPO has started to get real outlines only in 2004. Before that primary accommodations of shares of the Russian emitters were extremely an unusual occurrence. However in the autumn of 2004 three companies: “Mechel”, “the Seventh continent” and “Open investments” have lead IPO at the same time. Many Russian companies created during last years, have apprehended IPO as an effective way of attraction of the capital for development of the business.

2005 became the best year of the Russian share market. The day time volume of the tenders at the Russian stock exchanges exceeds \$1 billion, and in 2002 it hardly exceeded \$300–400 million. Still the most traded papers in the Russian market are shares of the Russian Open Society “United Power Systems” – ROS UPS (tab. 1). But their share in total volume was reduced from 56 % down to 34 %. During last years shares of the ROS UPS were bought up actively by strategic investors and the industrial holdings consuming huge quantity of the electric power.

It is not easy to win popularity to the new power companies which have appeared at the Russian stock exchanges during reform of electric power industry. With papers of largest of them – OGK-5 on the Moscow Interbank Stock Exchange (MISE) passes 100–200 transactions each day – much less, than with papers of the ROS UPS.

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<sup>1</sup> Kommersant. 19.12.2005. P. 17.

**“Gazprom”.** On December 22nd and 23, 2005 president Putin has signed the law and the decree on liberalization of share market “Gazprom”. These documents assign to the state of 50 % plus one share of “Gazprom” and remove all restrictions on possession of the remained share of non-residents. The signed decree cancels the decree 529 from May, 28th, 1997 on which these actions can circulate only at few stock exchanges which list is approved by the government. It was Moscow, Ekaterinburg and Siberian stock exchanges and Stock exchange “St.-Petersburg”.

**Table 1.** Change of structure of the share market<sup>2</sup>

Volume of the tenders 2005 (jan.– oct.)			Volume of the tenders 2002 (jan.–okt.)		
The emitter	\$ million	Share, %	The emitter	\$ million	Share, %
ROS UPS	45.094,22	34,31	ROS UPS	19.935,7	56,37
Lukoil	25.910,13	19,71	Lukoil	4.007,8	11,33
Gazprom	14.828,93	11,28	The Savings Bank	1.841,97	5,21
Norilsk nickel	12.511,02	9,52	Surgutneftegaz	1.994,48	5,64
Surgutneftegaz	7.771,84	5,91	Rostelecom	1.357,29	3,84
Rostelecom	7.429,64	5,65	UKOS	1.262,85	3,57
The Savings Bank	3.509,83	2,67	Mosenergo	878,03	2,48
Sibneft	1.697,39	1,89	Gazprom	874,73	2,47
Sberbank, pr.	1.503,26	1,64	Norilsk nickel	771,11	2,18
Surgutnefte- gaz, pr	1.407,94	1,63	Tatneft	590,26	1,59
Transneft, pr.	1.398,95	1,55	ROS UPS, pr.	419,72	1,59
Uralsvyaz- inform	1.309,67	1,00	Sberbank, pr.	351,16	0,99
MTS	1.172,40	0,89	Rostelecom, pr.	168,09	0,88
Rostelecom, pr.	868,06	0,86	Autovaz	147,93	0,72
Tatneft	847,06	0,74	Tatneft, np.	108,06	0,46
ROS UPS, pr.	822,71	0,73	Surgutnefte- gaz, pr.	177,96	0,50

<sup>2</sup> Wedomosti. 21.11. 2205. B-6.

On January, 24th, 2006 the first tenders by shares of "Gazprom" have passed on MISE. The stock exchange of RTS has started to trade in shares of "Gazprom" on January, 13th. Earlier non-residents could own no more than 20% of shares of concern and should receive special sanctions to transactions with shares of "Gazprom".

"Gazprom" waits reform; conversations about it are conducted during many years. Developing the plan of reform, "Gazprom" made use of experience of re-structuring E.ON RWE. Its essence is in the following: from present "daughters" of "Gazprom" which are engaged now simultaneously in extraction, transportation and processing of gas, will take out not main kinds of business. To re-structuring will be subjected 17 "daughters" of "Gazprom" which own or rent in total 80 % of all property of gas monopoly. All the allocated assets, except those for extracting, will be transferred in 6 special divisions<sup>3</sup>.

Re-structuring will pass in two stages and will take about two years. At the first stage "daughters" of monopoly ("company-donors") will allocate not main business in special Open Companies, so-called "companies-buffers". At the second stage "buffers" will be united by kinds of business. Extracting "daughters" and seven "trans-companies" will keep independence.

**Tab. 2.** The biggest companies in the world on May 9.2006<sup>4</sup>

	The company	Capitalization (\$ billion)
1	Exxon Mobil	387,2
2	General Electric	365,6
3	Gazprom	305,9
4	BP	253,6
5	Microsoft	242,2

Reform of "Gazprom" will be drawn by analogy to reform of the ROS UPS where the primary goal was also consist in division by kinds of business on the new companies. But when in manufacture of energy and its marketing business it is supposed to create a competition, "Gazprom" from its side plans to give nothing to private hands for a while.

<sup>3</sup> Wedomosti. 27.03.2006. A-1.

<sup>4</sup> Wedomosti. 10.05.2006. A-1.

**Tab. 3.** The biggest companies in the world on August 11.2006<sup>5</sup>

	The company	Capitalization (\$ billion)
1	Exxon Mobil	414,54
2	General Electric	335,51
3	Gazprom	277,87
4	Microsoft	249,22
5	Citigroup	235,53

In 2003 capitalization of “Gazprom” was estimated at \$29 billion. By May, 2006 capitalization of “Gazprom” has reached its peak: \$306 billion (3-rd place in the world – tab. 2). However on May, 10th, 2006 the collapse of a stock market of Russia has begun.

In the end of July, 2006 the shares of Gazprom began to rise in price again, and the company regained its previous position (tab. 3). It is necessary to note, that on July, 13th the company cost only \$200 billion. Now tens new Russian companies are ready for primary offering of shares.

In table 4 results of main IPO for last 10 years are shown. As we see many companies choose NYSE and LSE as their priority trade places. Advantages of public offering at the western stock exchanges seem obvious. It is an access to the big capital; both prestige, and creation of the market for existing shareholders. However requirements for emitters doing IPO abroad are considerably higher, than in Russia. Besides recently began to collapse a stereotype about insufficiency of the capital in the foreign market.

The new Russian companies have distinctly realized, that time of an open and transparent business for investors has come. In opinion of some participants of the market, the increase in number of primary accommodations tells about desire of the companies to receive money up to presidential elections of 2008. In reply to desire of the Russian companies to enter the open market the proper infrastructure was generated.

<sup>5</sup> Wedomosti. 14.08.2006. A-1.



**Table 4.** IPO of the Russian companies during 1996–2005<sup>6</sup>

The company	Stock exchange	Date	Placed share (%)	The involved sums (\$ millions)
Vypelcom	NYSE	11.1996	13	107
MTS	NYSE	06.2000	17	364
Wimm-Bil-Dann	NYSE	02.2002	24	199
RBC IS	MISE	04.2002	16	13
Irkut	MISE, RTS	03.2004	23	127
Kalina	MISE, RTS	04.2004	28	39,9
Mechel	NYSE	10.2004	10	291
The seventh continent	RTS	11.2004	13	81
The open investments	RTS	11.2004	38,5	69
AFC "System"	LSE	02.2005	16,5	1350
Lebediansky	RTS, MISE	03.2005	19,9	151
Grain of Altai	MISE, RTS	03.2005	10	8
Severstal-avto	RTS, MISE	04.2005	30	135
Pyaterochka Holding	LSE	05.2005	30	597,6
Evrast Group S.A.	LSE	06.2005	8	422
Rambler Media	AIM/LSE	06.2005	26	39,9
NOVATEK	LSE	07.2005	19	966
Urals Energy	AIM/LSE	08.2005	31	113,8
Amtel-Vredesten	LSE	11.2005	27	201,7
NLMK	LSE	12.2005	7	609
Zirax PLC	AIM/LSE	12.2005	30	13,7
IM&SG	AIM/LSE	12.2005	26	26,4

The highest requirements are shown at IPO on NYSE. In addition to the exhaustive information on activity of an emitter Americans demand disclosing the information about concrete industries and branches. At LSE such requirements are absent. In Russia all is even easier. The Russian prospectus of issue is, as a matter of fact, the marketing document.

In the beginning of 2006 everyone in Russia speaks about an entrance on IPO – even comparatively small companies. But hardly all of them are ready for this serious step. Haste in this process threatens with losses to present and future shareholders. And in scale

<sup>6</sup> Kommersant. 13.10.2005. P. 19; Wedomosti. 21.02.2006. A-6.

of the country the serious loss of reputation of all stock market can be caused and lead to loss of trust of investors in long-term prospect toward all Russian assets.

The Russian companies not always pay proper attention to fundamental principles of preparation for an output on the stock market. Often they simply carry out official requirements in the minimal volume. The investment bankers preparing accommodation often encourage the clients only to cosmetic changes: it is important to them to receive the fee and consequently they are not interested in the real changes that demand long internal work.

Often proprietors of the Russian companies do not wish to reform model of management according to requirements of the public company for one simple reason. They fairly believe that it will limit their authority. But it would be error to think, that the new model of management contradicts their interests. It limits abusing authority, for what proprietors of all successful companies stand up. Besides it creates the structures, allowing to make active executive functions and to achieve results. Frequently traditional proprietors do not wish to depend on board of directors and to divide functions of executive director and chairman of board of directors.

Per 2006 the Russian companies will lead securities on stock exchanges approximately on \$20 billion. Almost once a week the next new company informs about their plans to go on a stock exchange in the nearest couple of years, and investors literally pull out each other shares of the new companies. For example, top managers IPO of "Razguliay" – MDM-bank and Dresdner Kleinwort Wasserstein – have collected six times more of applications than volume of accommodation.

Whether such behavior of investors is justified? To estimate it, comparison of change of stock quotes of the companies which have appeared in the market with behavior of other papers has been lead.

It have been studied 22 companies (that have lead IPO from the beginning of 2004 when IPO became the mass phenomenon in Russia, till March, 2006). All these companies work in Russia, though some of them are registered abroad and their papers circulate at foreign stock exchanges. 13 from 22 emitters appeared at stock market more than year ago.

Results (table 5) speak for themselves. The investors, who have bought the shares of beginners in 2004, had luck. From seven

companies which have placed in that year only the shares of “Mechel” placed in December for 12 months after IPO have increased less, than an index of RTS (12,6% against 37,2%). But papers of gold mining company Peter Hambro later year after accommodation cost in 3,5 times more though the market for the same period has risen only on 17 %. Shares of company “Irkut” for the first year have was repaid for owners in 45,2%, and the index of RTS (RTSI) has lost 4,2%.

But from 2005 the situation has changed sharply. It became much more difficult for beginners to compete with an index which has added 83% during an year, and from the beginning 2006, despite of correction, – 20%. Of 15 companies only three – “NOVATEK”, “Rambler Media” and “NLMK” have overtaken RTSI, and “NMLK” – more recently. But prices of shares of five companies have fallen.

Participants of the market explain weak performance of the majority of beginners by overestimated inquiries of their owners to which indulges a number of congenital defects of the Russian share market.

RTSI – is a quite good reference point, but it represents the share market of the country which economy is warped aside oil-and-gas sector. The index on two third depends on the power companies which during the last of one and a half year grow due to promptly rising in price oil. In 2005 shares of such giants as “Gazprom” or “Lukoil” have essentially overtaken the market. It is more correct to compare the new public companies with branch indexes, but we have not them in Russia yet. As “blue chips” represent basically the oil and gas companies, it is very difficult to investors to diversify the portfolios. Because of this is a high demand for shares of consumer and telecommunication sectors which make the majority among beginners.

The matter is not only in lack of not industrial papers, that allow to skim the cream off by trailblazers from other branches. Underdevelopment of many sectors creates effect of rapid growth which also involves buyers. In the West retail networks grow with speed of inflation, and in Russia – by 50% a year, and of course, it is interesting to investors.



**Tab. 5.** Results of IPO of the Russian companies<sup>7</sup>

The company	Date of accommodation	In a year or on June, 9th, 2006	
		Change of cost of papers (%)	Change of RTSI (%)
Comstar OTS	7.02.2006	-27	2
Trader Media East	7.02.2006	-46	2
Zirax	16.12.2005	-7	24
NLMK	9.12. 2005	38	26
IM& SG	6.12. 2005	10	27
Amtel Vrederstein	14.11.2005	-50	38
Urals Energy	4.08. 2005	65	71
NOVATEK	21.07. 2005	117	80
Rambler Media	10.06. 2005	163	101
Evrax Group	3.06. 2005	69	127
Pyaterochka	6.05. 2005	26	163
Severstal-avto	22.04.2005	26	136
Pava (Grain of Altai)	21.03. 2005	-20	109
Lebediansky	11.03. 2005	58	92
AFK System	9.02. 2005	31	108
The open investments	29.11.2004	262	64
The seventh continent	12.11. 2004	124	46
Mechel	29.10. 2004	13	37
RBC IS	17.06. 2004	311	17
Peter Hambro Mining	7.06. 2004	248	17
Guelder-rose	28.04. 2004	115	0
Irkut	26.03. 2004	45	-4

Popularity of Russia and uniqueness of assets allow owners of the companies to involve money, not leaving a place for the big prize to investors.

Investors have already paid attention to weak game of expensive debutants. Much speaks now about slow growth of companies after IPO. This theme soars in air and forces to hesitate buyers. All over the world papers of the emitter in the secondary market usually grow in price. In fact this is a beginning of public history of a company. And in Russia they can fall in price in the first month after accommodation.

<sup>7</sup> Vedomosti. 9.06.2006. A-1.



The first warning to owners is a history with “Cherkizovski”. Before the accommodation the top manager (Morgan Stanley) has refused to participate in it. The investment bank has explained its position by disagreement with too high price which was requested by owners of “Cherkizovski” for the company. And although IPO has passed successfully, bank does not regret about its act: the investment bank should provide equally attractive conditions to owners, and to investors both.

On January 17<sup>th</sup>, 2006 a number of the positions is signed, which considerably changed rules of accommodation of securities by the Russian emitters. Now accommodation can be made more quickly and easier, but only inside of the country – the limit of accommodation abroad is lowered from 40% to 35%. Besides that emitters should “pay” for liberalization by greater disclosing of information about their company.

Owing to some changes in normative documents the emitter has an opportunity to reduce term of carrying out of issue due to more operative accommodation of papers among investors, and due to reduction of term of registration in FFMS<sup>8</sup>. Besides the emitter can choose the investor (with a preservation of the right of priority by former shareholders). It is simplified also the procedure of entry in quotation leaf of Russian stock exchanges by an emitter.

In the autumn 2005 the State Duma has approved the amendments to laws “About a securities market”, “About joint-stock companies” and the law “About protection of the rights and legitimate interests of investors”, changing principles of public accommodation of securities. In particular, now the prices for shares at carrying out IPO will be formed on auction, instead of in advance as it has been registered in the former legislation.

By these measures FFMS will promote increase in capacity and liquidity of the stock market in Russia. Foreign investors have much less restrictions on purchase of shares in Russia. And here Russian PIFs<sup>9</sup>, for example, have very rigid restrictions on purchase ADR of shares of the Russian companies in Britain and the USA.

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<sup>8</sup> Federal Financial Markets Service of Russia.

<sup>9</sup> PIF (paevoi investitsionnyi fond) – joint-stock investment fund.

## On what Russian companies spend money from IPO

By preparation of public accommodation the company informs investors, on what it is going to spend the received money. For example, "Mechel" has specified, that it plans to start up half of means for capital expenses, and half – on purchase of the new companies and licenses. "Evraz Group" – that it can direct money for purchase of new assets, development of operating capacities and the repayment of share at co-owners of branches. AFK "System", for example, has informed what it intend to get "Svyazinvest", "Uraltelecom" or "Kazakhtelecom". The most concrete was "Amtel Vredestein" – the company promised to spend money of new shareholders for payment of debts.

However, even these declarations concern only those means that is received by the company due to additional emission. Usually it is written in memorandums about the money obtained from sale of existing shares that it "does not go to the company". Hardly probable not unique exception – the memorandum "NOVATEK" in which it was promised, that one of shareholders – company "Levit" – will liquidate a debt in \$720 million. Have shareholders fulfilled their promise or not, in "NOVATEK" have refused to specify. And one of co-owners "Pyaterochka" has explained in reply to a similar question, that the public should not excite, where shareholders have put means – let even they "have dug money".

**Investments.** Not too willingly companies tell about the money received during accommodation. Besides no one consider these means separately, and they are dissolved in aggregate profits. Nevertheless, data who managed to be collected by the newspaper "Vedomosti", allow to approve, that the greatest part of money goes not on development existing, and on purchase of new assets.

For example, "Severstal-Avto" (has received \$663 million) has spent \$50 million for purchase the factory of midget cars and \$25 million for modernization.

AFK "System" (\$1,318 billion) has not bought any of three state television companies (their privatization till now did not take place). But, as it has been declared, it has spent \$600 million for purchase minor-shares in six Bashkir power companies, \$275,5 million – for 2,3 % of shares of MTS and only \$277 million – for development of branches: "Intourist", Children's world", IBRD and "Citronix".

After IPO "Mechel" (\$233,1 million) became an owner of 25% + 1 share of "Yakutskugol", having redeemed them on auction for \$420 million and has started at the Chelyabinsk metallurgical combine the first turn of new English factory that costs more than \$150 million.

In "Evraz Group" (\$422 million) have refused to do any official comments. However it is known, that right after IPO the group has bought for \$79,1 million 75% of shares of Italian metallurgical combine "Palini e Bertoli", and in November, 2005 – 98,96% of Czech company "Vitkovice Steel" for €240 million

"Rambler Media" (\$30,8 million) has directed nearby \$27 million on "the further development, and, first of all, – on purchase of profile business". "Kalina" has spent (\$25,4 million) money for purchase of 51% of shares of German cosmetic company "Dr. Scheller" (having spent for it \$16 million) and the new equipment for the Russian enterprise.

Still, the companies where the most part of money has been invested in their own construction, exist. For example, "Irkut" has directed its means from IPO on modernization which will allow produce components under the contract with Airbus. And "Pava" (previously "Grain of Altai", \$4 million) has spent \$2 million for the organization of manufacture of crackers on Achinsk factory and \$2 million on advertising of new mark of flour. The money collected by "Amtel Vredstein" (\$153 million), as well as it was promised, has gone on repayment of debts.

In companies "Urals Energy" (\$113,8 million) and "Open investments" (\$49,5 million) have refused to do any comments.

**Result.** If in 2006 the Russian companies will really receive \$20 billion from accommodation, this money can be rather appreciable for economic growth. In fact growth of Chinese GDP on 10% per year is in much a consequence of 20%-s' growth of investment in a fixed capital. In Russia in 2005 the investment have grown only on 10,5%. But in 2006 due to IPO Russia can reach 20 %. However, whether the boom of IPO will go on advantage of the Russian economy, depends on what will be spent money. Purchase of assets, especially abroad, will give not much for acceleration of growth of GDP.

By some estimations, in 2005 the investment of the Russian companies directed in development and the modernization which were financed due to IPO, have made less than 1% of all investments



into a fixed capital (\$122 million). Certainly, it practically will not be reflected in economic growth of Russia.

### Results of IPO during the first half of 2006

Of 50 companies which in 2006 were going to sell the shares to investors, only 10 went on a stock exchange in the first half-year of 2006. Owners of the companies have involved \$3,2 billion, and in view of national IPO "Rosneft" and other accommodations of July-December the volume of this market in 2006 can reach nearby \$20 billion.

**Tab. 6.** Ranking of the companies – emitters of IPO<sup>10</sup>

	The company-emitter	Volume of IPO, \$ million	Part of shares, %	Stock exchange
1	Comstar-OTS	1062	35	LSE
2	Trader Media East	515	79	LSE
3	Magnet	368	19	MISE, RTS
4	CTC Media, Inc.	346	16	NASDAQ
5	C.A.T. Oil	322	35	Deutsche Boerse
6	Cherkizovo	251	28	LSE, MISE, RTS
7	Razguliay	144	28	MISE, RTS
8	Verofarm	140	50	RTS
9	Baltic Oil Terminals	56	52	AIM/LSE
10	Amur Minerals Corporation	7	14	AIM/LSE

Processes of IPO in Russia grow. The proprietors requiring means for development of their companies, remark more frequently the interest of portfolio investors toward their business. In January – June, 2004 only two domestic companies have placed the shares at a stock exchange. Next year there were already 7 of such emitters, and in the first half-year 2006 10 Russian companies (see tab. 6) became public ones.

<sup>10</sup> Vedomosti. 21.07.2006. B-3.



These 10 companies have involved \$3,2 billion in the market, and almost third of this sum has fallen upon the IPO of “Comstar” which has gained \$1,06 billion from sale of 35% of its shares on LSE.

The largest accommodations (about two thirds of all volume of the market) in January–June, 2006 have lead the companies of telecommunication- and media-sectors while on metallurgy and a fuel and energy complex – only 12%. Some of IPO did not take place because some companies, declaring their plans about IPO, simply gave a craze. Sometimes it is only advertising course of small and average players.

Now the centre of gravity of Russian IPO is abroad. Almost 80% of all involved during IPO money are collected from investors on the western platforms – LSE, its division for small companies AIM, NYSE, NASDAQ and Deutsche Boerse. And the unconditional leader among them is LSE where has passed five of IPO (58% of cost volume of all accommodations). If development of the market will occur under the same scheme and in the future, it hardly will positively be reflected in the Russian share market.

### **IPO of “Rosneft”**

The decision on necessity of carrying out of IPO of “Rosneft” was accepted spring of 2005. In the end of 2004 “Rosneft” has bought “Yuganskneftegaz”, whose extraction twice exceeded extraction of “Rosneft”. Purchase of “Yugansk” at once has put forward “Rosneft” in leaders among the oil companies though in 2004 it was only the seventh.

When in December, 2004 “Rosneft” has bought “Yugansk” for \$9,35 billion, experts converged in opinion, that “Rosneft” had not sufficient means for this step. But the company carefully hid sources of financing. Even board of directors of “Rosneft” has learned about its large financial transactions only in February, 2005 and has approved them already backdating. The scheme of financing “Rosneft” has described completely only in the report for the first quarter of 2006, published on May, 15th<sup>11</sup>. More than three quarters

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<sup>11</sup> Vedomosti. 17.05.2006. A-1, B-2.

of assets of present "Rosneft" are assets of the "Yuganskneftegaz", former basic oil refining enterprise of "UKOS".

In September, 2005 "Rosneftegaz", parent company of "Rosneft" has received the mysterious loan which has allowed it to buy 10,74% of "Gazprom" for \$7,5 billion. This purchase has restored supervising share of the state in "Gazprom" and that was the major step before liberalization of structure of the share capital of "Gazprom".

On June, 28th 2006 the largest IPO in the Russian history has started: banks all over the country have started reception of applications from persons who wish to buy shares. The branches of the "Savings Bank", "Gazprombank", "Uralsib" and other banks have started to accept applications from the population for shares of the company. Closing of the book of applications planned for July, 13th, 2006, and trade at stock exchanges on July, 14th has begun.

On July, 14th, 2006 "Rosneftegaz" and "Rosneft" have placed 14,8% of shares of the oil company for \$10,4 billion. From them of 4,4% (400 million) shares of "Rosneft" have been let out for IPO, and 10,4% of shares belonged to "Rosneftegaz" for which sale it has received \$8,5 billion. As a result of sale a state company it has appeared the branch leader on capitalization – almost \$80 billion

As a result of IPO by volume of capitalization "Rosneft" has overtaken "Lukoil" and became the first in oil branch. And IPO of "Rosneft" took the first place in Russia and fifth in the world by volume of the collected money (\$10,4 billion). Former Russian leader AFK "System" – has collected \$1,56 billion.

Strategic investors have provided 21% of demand, the international investors from the USA, the Europe and Asia – 36%, the Russian investors – 39%, the Russian retail investors – 4%.

The largest investors – British BP (\$1billion), Malaysian Petronas (\$1,5 billion) and Chinese CNPC (\$0,5 billion). Also shareholders of the company became 115000 of Russians whom applications for \$750,5 million have submitted. For comparison: the general number of clients at all share investment funds of Russia is only in 2 times more.

The head of the company – Sergey Bogdanchikov has bought papers approximately on \$1 million<sup>12</sup>. The richest Russian billionaire – Roman Abramovitch (a fortune – \$18,3 billion) has bought shares

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<sup>12</sup> Vedomosti. 17.07.2006. B-1.

of "Rosneft" approximately on \$200 million. It is approximately 0,4% of the authorized capital of the company. The owner of "Bazel" Oleg Deripaska has bought shares approximately on \$400 million. The fortune of Deripaska is nearby \$9 billion (6-th place in Russia). Owner of NLMK Vladimir Lisin (\$11,3 billion, 3-d place) has enclosed nearby \$200 million<sup>13</sup>.

As some inspections show, about 11% of Russians are ready to put the savings in the share market. These 10 million potential investors can help to make a quantum leap to the Russian share market. If to take average volume of small private investors in "Rosneft" (nearby \$6500) it will turn out, that potential volume of national investments is more than \$65 billion. For comparison: now in Russia is nearby \$110 billion on deposits. Experts consider as a normal a situation when the share of physical persons in the share market makes 30%. But \$65 billion is only 10% of current capitalization of the Russian share market.

Analysts expect, that in 2006 the Russian market of IPO will reach \$19–20 billion, i.e. minus last accommodations (11 companies, total amount of the involved means – \$13,6 billion) still is expected primary sale of shares for the sum of \$5,4 billion. Thus, the population is quite capable to provide needs of the Russian companies for money.

But there is also an underside. First of all, it is necessary that citizens were not disappointed in the share market. Shares of "Rosneft" after the beginning of the tenders have started to fall, and analysts warn in the autumn of the quotation of "Rosneft" can fail at all. The falling of quotations of "Rosneft" will not strongly affect mood of mass investors: 63% of the citizens who have subscribed the shares, count on growth of quotations. The general economic situation is much more important<sup>14</sup>.

On July, 31st, 2006 Standard & Poor's has raised a rating of "Rosneft" till BB. But it still below, than "Lukoil" and the Multinational corporation-BP (ratings BB +).

The first month of the tenders of shares of "Rosneft" has not brought a big success to a paper<sup>15</sup>. Its quotations oscillate close to the

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<sup>13</sup> Vedomosti. 24.07.2006. A-1.

<sup>14</sup> Vedomosti. 19.07.2006. A-1, A-4.

<sup>15</sup> Vedomosti. 23.08.2006. B-1.



level of IPO, and volumes of the tenders are far from a level of the most liquid Russian actions. For the present "Rosneft" bargains worse than "Tatneft", and much worse than "Gazprom" and "Lukoil".

It is known that after accommodation "Rosneft" has established on 3-d place in the country on capitalization, having passed forward only "Gazprom" and "Lukoil". However it is not so simply to develop this success on exchange platforms. Shares of "Rosneft" cost more than the price of accommodation (\$7,55 for 1 piece) only few of days, and basically quotations were below this level. And steady growth of volumes it is not visible yet. If to compare total mid-annual turns on "blue chips" at all stock exchanges "Rosneft" will borrow on this parameter 10-th place with result \$38,5 million, that is in 28 times less than volume of the tenders by shares of "Gazprom" and in 21 times – of "Lukoil".

The volume of the tenders of "Rosneft" is inadequate to sizes of IPO. For such a big company it is a low turn. Participants of the market see in that some reasons. The main reason is that the most part of shares was bought up by long-term investors. As a result the real free-float of "Rosneft" is essentially less than 15%. Too high price of accommodation also is the deterrent. However, in opinion of experts, it is quite probable, that at the beginning 2007 "Rosneft" will overtake "Tatneft" on volume of the tenders.



# **INNOVATIVE FINANCIAL SERVICES AND THEIR RISKS: THE CASE OF E-BANKING**

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## **Abstract**

Taking into account the rapid adoption of electronic delivery channels in banking during the last few years, it is important to understand what electronic banking (e-banking) really is as well as its benefits both for banks and their customers. In addition, it is essential to review the recent development trends of e-banking from the global perspective and to analyse the reasons for a high e-banking penetration in the countries leading in this field. It is also crucial to know the specific risks, which arise with the introduction of e-banking in order to be better prepared for their mitigation.

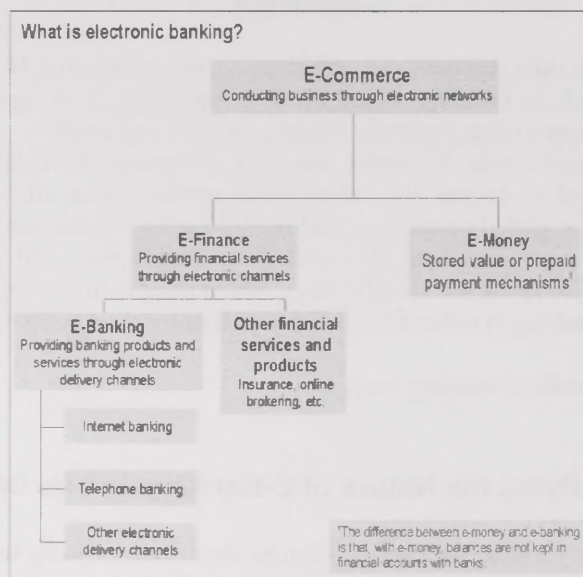
**Keywords:** *e-banking, risks*

## **1. Specifying the Nature of E-Banking and Its Benefits**

Electronic banking (e-banking) can be described in many ways. In a very simple form, it means provision of information or services by a bank to its customers, via a computer, television or mobile phone. Electronic banking should be viewed as a high-order construct consisting of several distribution channels and it is in fact a larger platform than just banking via the Internet. The following platforms of e-banking can be distinguished: (a) Internet banking, (b) telephone banking, (c) TV-based banking, (d) mobile phone banking, and (e) PC banking [21].

Schilder defines e-banking as the provision of banking services by means of electronic data transfer between participants [30]. The information is transferred via a network, which may be a computer network such as the Internet, or a telecommunications network.

Quite similar to the Schilder's one are the definitions of Schaechter's [29], Nsouli's [27] and Fullenkamp's [16]: electronic banking can be defined as the use of electronic delivery channels for banking products and services. In addition, Nsouli and Schaechter specify that e-banking is a subset of electronic finance. The most important electronic delivery channels are the Internet, wireless communication networks, automatic teller machines (ATMs), and telephone banking [29].



**Figure 1.** The Definition of E-Banking [27]

European Central Bank specifies e-banking via the delivery channels characteristic to its provision: electronic banking services include payment cards, ATMs, POS terminals, telephone and mobile phone banking, and Internet banking [11]. Karjaluoto and Fullenkamp believe that the main delivery channel for electronic banking today is the Internet, and the growth of electronic banking as a delivery channel depends heavily on its development.

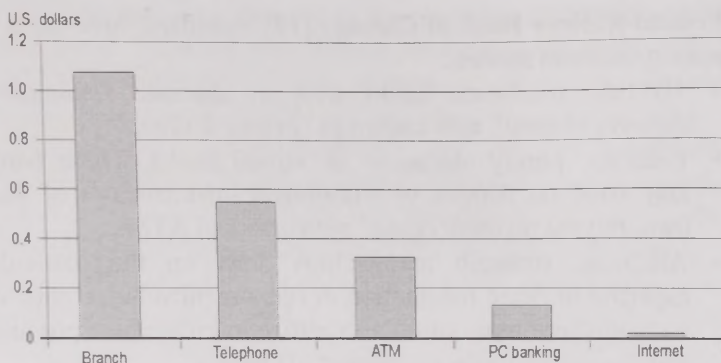
Federal Reserve Bank of Chicago [12] identified three types of e-banking business models:

- Hybrids: traditional banks with an alternate e-commerce delivery channel, also known as “bricks & clicks”.
- E-Banks: purely electronic or virtual banks. These banks may have no deposit or withdrawal infrastructure of their own, relying on other banks’ networks and ATMs.
- Alliances: strategic partnerships draw on the particular expertise or name recognition of one organization, combined with another organization’s expertise to create new products and diversify a partner’s product offering.

E-banking provides vast opportunities for banks and their customers [29]. Access to services and products is fast and available around the clock independent of the location of the customer. The electronic delivery channels increase transparency and can lead to higher competition among banks, and a most significant point – through lower costs, penetrating new markets and expanding the geographical reach.

According to Duisenberg [7], because of tightening competition, bank customers will probably get better and more efficient financial products and -services. The new technology should help a client to reduce the time and energy while buying financial services. As a result of the changes in banking practices, services of a wider range could be offered to customers. Moreover, the increase in efficiency enables to offer them cheaper. At the euro-zone, there would join the impact of the implementation of common currency, which accelerates the movement towards the integrated financial markets of the whole area.

In Nsouli’s opinion, with the implementation of e-banking banks can provide services more efficiently and at substantially lower costs. For example, a typical customer transaction costing about \$1 in a traditional bank branch or \$0.60 through a phone call costs only about \$0.02 online.



**Figure 2.** The Cost of Transactions in Different Banking Channels [3]

According to Nsouli, electronic banking is sometimes seen as an opportunity for countries with underdeveloped financial systems to leapfrog developmental stages. Customers in such countries can access services more easily from banks abroad and through wireless communication systems, which are developing more rapidly than traditional “wired” communication networks. This view finds its confirmation also in the research of Claessens [4]: new technology, including the Internet, smart cards, and the use of mobile phones can help broaden access to financial services.

In Crockett’s view, there are good grounds for supposing that the Internet and financial services have unique synergies [5]: the Internet offers convenience, price transparency, broader access to information and lower cost; financial services are information-intensive and generally require no physical delivery. E-finance has the potential, not only to take business away from traditional, “bricks-and-mortar” delivery systems, but also to introduce new business models, changing financial structure and driving financial consolidation.

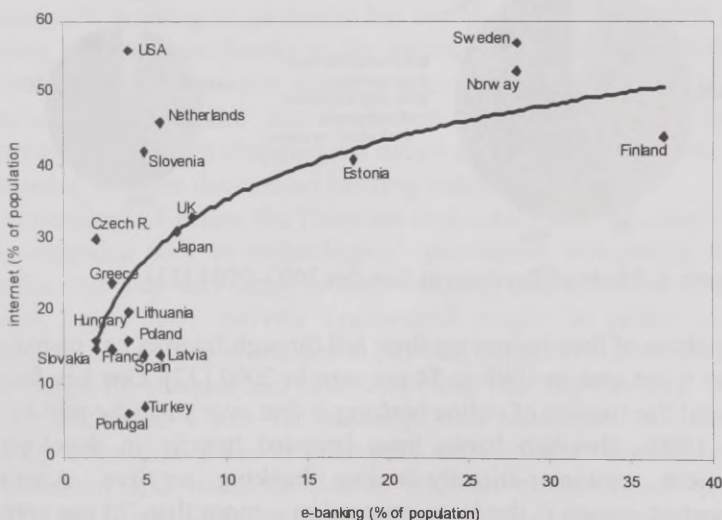
According to Hussein, “Vital changes in terms of communications between the bank and the customer will put an end to the problems of place and time. Consequently, this will allow customers to be connected to their banking information with the ability to complete transactions 24/7 without visiting the branch. This will not only drive banking sector growth, but also the entire economy” [8].



## 2. The Development of E-Banking from the Global Perspective

The two most important external factors affecting the EU banking environment in the next 5 to 10 years are thought to be technological innovations and the internationalisation of banking activities [11]. Technological innovations relate to the already high and growing importance of electronic banking services (increasing productivity of services) and improvements in computing technology and data processing (allowing refinements in risk pricing, the development of increasingly complex financial instruments and the automation of credit granting procedures).

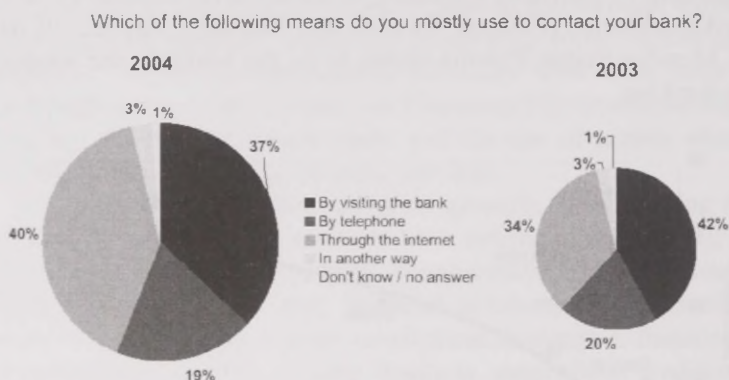
Currently, electronic banking services are already very popular and widespread in most countries, albeit to different degrees between countries. For instance, e-banking penetration is higher in countries with a higher Internet penetration (see Figure 3). According to the ECB, e-banking is widely spread primarily in the Nordic countries (Finland, Sweden and Norway). Among 10 new EU Member States, Estonia seems to be the leader in the adoption of e-banking.



**Figure 3.** Internet and E-Banking Penetration in 2002 [11]

The Nordic countries in general have taken the lead in electronic banking services. They have been in the vanguard of applying technology to enable their customers to handle all their banking services online. As a result, these banks have a very high proportion of Internet customers, compared with banks in most other countries [25]. Keenan also states that the Nordic countries are pioneering developments in Internet banking services [22]. They are well ahead of their continental rivals in terms of customer penetration and the services offered.

Swedish banks are among the most advanced in Internet banking services. All major banks in Sweden offer online status on accounts and other assets, online payments, and the possibility to buy and sell units in funds and shares. Corporate customers have been able to bank via the Internet for many years. In Europe Sweden has one of the highest proportions of the population using bank services through the Internet.



**Figure 4.** Mode of Payment in Sweden 2003–2004 [33]

The share of Swedes paying their bill through Internet has increased from 9 per cent in 1999 to 54 per cent in 2006 [32]. One key factor behind the success of online banking is that ever since the middle of the 1990s, Swedish banks have invested heavily in developing efficient, customer-friendly online banking services. Another important reason is the large proportion – more than 70 per cent – of Swedish homes with access to the Internet [Ibid]. In the Survey of Developments in Electronic Money and Internet and Mobile

Payments conducted by the Bank of International Settlements (BIS) in 2004 the large Internet penetration ratio is also mentioned as one of the reasons for a rapid adoption of Internet banking in Sweden [1]. According to the survey, e-banking is currently a major service channel used by a large share of both corporate and private customers.

In the view of the Swedish Bankers' Association [32], customers who start to bank online are also proving to be more active as they engage in more banking transactions. The growing use of online banking will allow banks to replace their conventional branch offices with ones concentrating on advisory services and sales.

According to McDonald, Swedish banks had apparently reached the conclusion that Internet banking had improved the efficiency of traditional banking services, increased competition in the financial markets and enhanced customer satisfaction [25]. New and more advanced services will be delivered through combining and integrating Internet, mobile banking, ATMs, digital television, telephone banking and the branches.

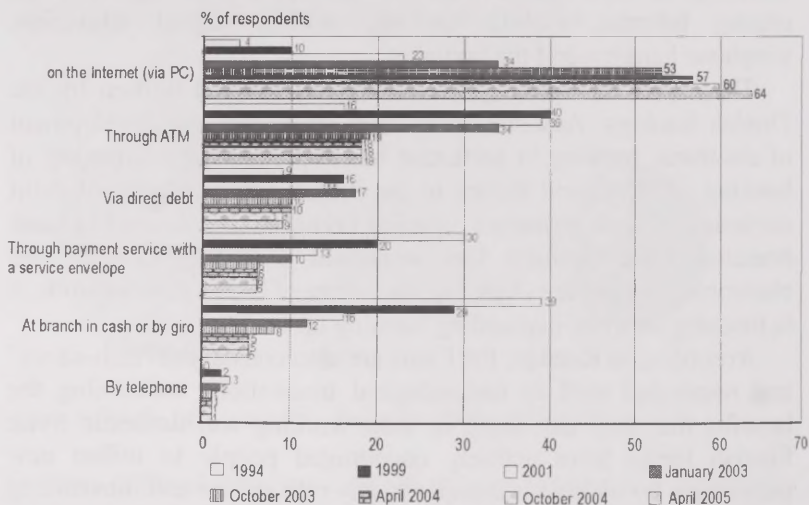
The report on Banking Technology in Finland written by the Finnish Bankers' Association in 2004 states that the development of electronic banking in particular has improved the availability of banking services, and thanks to the increasing popularity of debit cards and Internet payments, opening hours and the number of bank branches have become less important [13]. Self-service and electronic banking are changing the nature of the branch network; it is focusing on more demanding banking tasks.

According to Keenan, the Finns are also considered 'tech-savvy' and responded well to technological innovations welcoming the benefits that they can bring to their working and domestic lives. Finnish banks have actively encouraged people to utilise new technology by making it cheaper to pay bills online and introducing a surcharge for cheques and other traditional banking services. The use of pricing as a tool for inducing bank customers to use e-banking is mentioned also in Jyrkönen's research [20]. The research of Leinonen also indicated that in addition to customers' own interest in IT technology and telecommunications, banks have been very effective in marketing new electronic banking services [23]. According to the BIS 2004 Survey, as a result of a severe banking

crisis in Finland at the beginning of the 1990s, a number of bank branches collapsed and, at the same time, banks encouraged customers to use self-service, e.g. by pricing. The survey also indicated the high penetration of the Internet and mobile phones in Finland, which is seen as a natural reason for the development of many payment solutions on the basis of these channels.

The results of the Survey on Saving and Use of Credit conducted by the Finnish Bankers' Association in 2005 reflect the change in banking habits of Finns in the last 10 years [15]. Ten years ago 4 per cent of Finns paid their bills mainly via the Internet. At the moment, for 64 per cent of Finns the most common way of paying the bills is via the Internet and their share has continued to grow. Conversely, the number of Finns who pay their bills most commonly at the bank branch desk has gradually declined, and currently is 5 per cent.

Q: What is the most typical way you pay your bills?



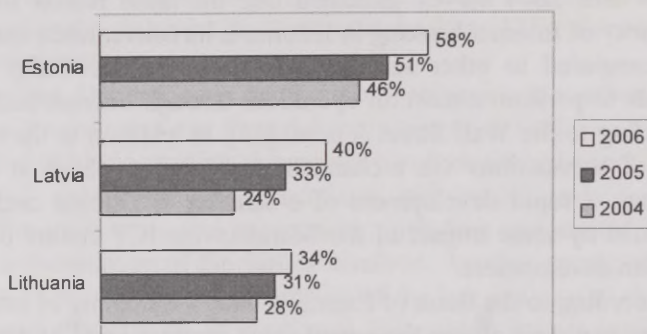
**Figure 5.** Mode of Payment in Finland 1994–2005 [15]

According to the Lindquist's research, only 14 per cent of non-cash payments were in electronic form in 1987, but by 2001 this had risen to 83 per cent [24]. Like in the case of Finland, banks' pricing policy is mentioned as one of the reasons for that change also in



Norway. In addition, Lindquist also mentioned that the banks' motivation to offer electronic payment services might be due to both cost-saving efforts and competition. Once the necessary investment is made, electronic payments cost banks much less to produce than paper-based payments. If customers find electronic payment services more convenient than paper-based services, and hence prefer the former, electronic payment services may be viewed as strategic variables in the competition for customers.

According to TNS Emor, during 2006 the number of Internet users has increased in all Baltic countries. The share of Internet users continues to be the largest in Estonia – 58% of 15–74-year-olds [9].



**Figure 6.** The Share of Internet Users in the Baltic States 2004–2006 (Source: TNS Emor)

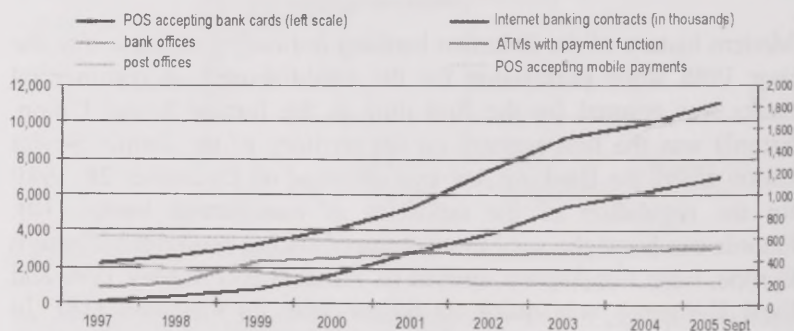
Modern history of the Estonian banking industry goes back into the year 1988 when permission for the establishment of commercial banks was granted for the first time in the former Soviet Union. Estonia was the first country on the territory of the former Soviet Union where the Banking Act was enforced on December 28, 1989 for the regulation of the activities of commercial banks [10]. Estonia can boast the very first Internet banking products in Eastern Europe. Eesti Forekspank opened its Forex Direct in May 1996 and Eesti Hoiupank was quick to follow with its Panganet [18]. In January 1998, the banks raised the service fees for cash transactions in order to popularise the non-cash settlement system through telephone, Internet and telebanking [10]. The effective use of pricing policy by the Estonian banks is also mentioned in the

Hansapank's review: according to that many banks have been keeping remote banking charges lower from those in the branch in order to attract customers to e-channels.

40 per cent of the Estonian population is using e-banking, which is the highest rank between 10 Central and Eastern European Countries (CEEC) [6]. The CEEC's average rank was 4 per cent; the lowest grade was in Bulgaria where according to this survey only 0.2 per cent of the population used e-banking services. 72 per cent of Estonian enterprises with Internet access used the Internet for banking or financial services. The high level of e-banking in Estonian enterprises points to a high level of trust in banking services.

The BIS 2004 survey indicated that the main reason for the popularity of Internet banking in Estonia is its convenience and low cost compared to other services offered by banks. Today it is possible to perform almost all operations through Internet banking. According to the Wall Street Journal [34], in addition to the lower price of transactions via e-channels compared to those at bank branches, a rapid development of e-banking in Estonia could be explained by some impact of the Scandinavian ICT culture on the Estonian development.

According to the Bank of Estonia's data, the number of Internet banking contracts during the recent years increased and by the end of the third quarter of 2005 amounted to over a one million [2]. At the same time, the number of bank offices has been rather stable.



**Figure 7.** Retail Payment Channels in Estonia (as at the end of period) [2]

### **3. Risks of E-Banking**

Although the adoption of electronic finance and other e-services offers emerging economies an opportunity to leapfrog, it also carries potential risks. Most of the crimes that exploit the vulnerabilities inherent in these technologies are not new – fraud, theft, impersonation, denial of service, and related extortion demands have plagued the financial services industry for years. However, the widespread use of these technologies exposes users to crimes of greater dimensions in terms of depth and scope [17].

The flip side of the technological boom is that electronic banking is not only susceptible to, but may exacerbate, some of the same risks – particularly governance, legal, operational, and reputational – inherent in traditional banking [27]. According to Ramakrishnan, e-banking does not open up new risk categories, but rather accentuates the risks that any financial institution faces [28].

In Schilder's opinion, e-banking involves several specific operational risks [30]. One operational risk mainly relates to the security of systems and transactions, including data confidentiality and authentication of the parties involved. Another operational risk refers to the continuous availability of the Internet as a medium for financial transactions. According to Schaechter, system availability is an essential criterion to limit operational and reputational risk for banks. To take full advantage of the potential benefits of e-banking services, systems should be available on a 24-hour basis. This availability is prone to serious hazards, such as computer viruses and hackers.

Crockett identified four risk categories associated with the development of e-banking [5]. First, there is the risk of strategic and business misjudgements. In Sergeant's opinion, e-banking is relatively new on strategic risk and, as a result, there can be a lack of understanding among senior management about its potential and implications. This view is also shared by Ramakrishnan. Regarding business risk, Sergeant believes that taking into account the newness of e-banking, nobody knows much about whether e-banking customers will have different characteristics from the traditional banking customers.



The second risk is operational, resulting from reliance on complex technology. One of the components of operational risk is, according to Sergeant, the forecasts of the potential customers' volume, which in the case of e-channels have proved difficult [31]. Many banks going online have significantly misjudged volumes. When a bank has inadequate systems to cope with demand, it may suffer reputational and financial damage, and even compromises in security if extra systems that are inadequately configured or tested are brought online to deal with the capacity problems.

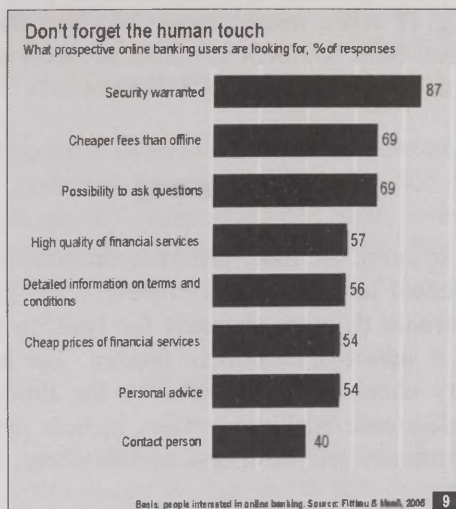
The third risk arises from legal and regulatory uncertainty in e-finance transactions referring in particular to the difficulty of identifying the headquarters of an e-finance firm. Ramakrishnan names the legal and regulatory risks as a compliance risk [28]. This is the risk to earnings or capital arising from violations of, or non-conformance with, laws, regulations and ethical standards. This risk is amplified when the customer, the bank and the transaction are in more than one country.

The fourth risk is systemic risk. Because financial institutions use similar software programs, there is a risk that many large institutions could be simultaneously subject to a common adverse shock.

According to Schaechter and Karjaluo, security is considered the central operational risk of e-banking. Threats can come from inside and outside the system. They include unauthorized access to the system through, for example, "back doors", "brute force", "hijacking", "sniffing", or "spoofing" to retrieve and use confidential consumer information, add customer assets, subtract customer liabilities, or interrupt operations. Similarly, "denial of service" attacks and injecting a virus can disrupt services and affect integrity of information [29]. Schaechter viewed outsourcing as an additional security threat, which can also have a major impact on the data and system integrity and availability. Outsourcing is believed to be a material risk in e-banking also by Sergeant. Harald believes that the security of e-banking should be taken seriously in order to fight against cyber-crime – especially money laundering, fraud and virus-terrorism [19]. According to the Finnish Bankers' Association's report, banking is based on trust and therefore the security of services offered to customers is a cornerstone of banking operations [13]. In Ramakrishnan's view, the speed of change of



technology and the fact that the Internet channel is accessible universally makes the security risk especially critical.



**Figure 8.** Expectations of E-Banking Customers [26]

According to Deutsche Bank Research, security is the most important concern for many customers. Cheaper fees and the possibility to ask questions are not so essential compared to the expected level of security in e-banking.

The problem of money laundering in e-channels is addressed by Schaechter and Nsouli. E-banking, in particular Internet banking, can potentially be misused for money laundering because of the lack of face-to-face contact with customers [29]. In Nsouli's opinion, money laundering has been greatly facilitated by electronic banking because of the anonymity it affords: once a customer opens an account, it is impossible for banks to identify whether the nominal account holder is conducting a transaction or even where the transaction is taking place [27].

According to Sergeant, reputational risk is considerably heightened for banks using the Internet [31]. The Internet allows for the rapid dissemination of information, which means that any incident, either good or bad, is common knowledge within a short space of time.

Jyrkönen believes that the entities developing and providing new payment solutions should pay adequate attention to inherent risks, for instance, legal and operational risks [20]. Operational risks include e.g. IT risks, management risks and risks related to criminal activities. New payment solutions are very dependent on technology and so there may be special IT risks.

#### **4. Conclusions**

In the author's opinion, the most complete definition of electronic banking is presented in the Nsouli's research (2002): e-banking is the use of electronic delivery channels for banking products and services and is a subset of electronic finance. The best list of e-banking delivery channels is presented by the European Central Bank (2006): electronic banking services include payment cards, ATMs, POS terminals, telephone and mobile phone banking, and Internet banking.

E-banking provides substantial benefits both for banks themselves and their customers. For bank clients, the main gains are time and cost savings. Because of tightening competition among banks, customers will probably get better and more efficient financial services. For banks, with the implementation of e-banking financial services can be provided more efficiently and at substantially lower costs. Furthermore, e-banking can help broaden access to financial services. The introduction of technological innovations in banking will not only drive banking sector growth, but also the entire economy.

In the next 5–10-years perspective, the two most essential external factors effecting the development of the EU banking sector are technological innovations in the light of the growing importance of e-banking services as well as the internationalisation of banking activities.

E-banking is widely spread primarily in the Nordic countries (Finland, Sweden and Norway). Among 10 new EU Member States, Estonia seems to be the leader in the adoption of e-banking.

The main reasons for an intense use of e-banking services in the Nordic countries are a high penetration of the Internet and an effec-

tive use of pricing policy by the Scandinavian banks, thus inducing bank customers to use e-banking channels instead of traditional bank branches. The reasons for a wide adoption of e-banking services in Estonia are mostly the same as in the Nordic countries. In addition, there could be some impact of the Scandinavian ICT culture on the rapid penetration of technological innovations in Estonia.

Despite undoubted benefits, the introduction of e-banking can also lead to potential risks. According to the results of the conducted research, the most important risks associated with e-banking are operational, legal and reputational. The major concern for e-banking clients is a security of e-channels.

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# **IN WHICH (SMEs) SHOULD BE INVESTED?**

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## **Abstract**

There are over 15 millions unemployed people within the EU and tens of millions worldwide. Many scientific papers presented at the ICSB World Conference 2005 in Washington concluded in their findings that there is overall world tendency for decrease in the new start-ups. This tendency has been confirmed in the research studies performed at the European Universities as well as at the USA Universities. To cope with these two problems would ask for more international cooperation and more research in finding effective solutions. The SMEs perform in the same global environment as big MNC but there are specific problems that affect SMEs more than larger businesses.

Regardless of these barriers, SMEs represent a formidable economic force, creating 37% GDP of the Czech Republic and providing employment for 60% of the labor force. There has been steady effort on part of the Government and the EU administration to create funds and subsidies to support small businesses. But which one should be supported? The most probable answer from the economic point of view would be –those having profitable performance. The traditional methods of rating the company's performance have concentrated on measuring the benefits of cash inflows.

Some research has been undertaken at the University of Economics, aimed at problems of entrepreneurial activities of SME. The first question being asked by money providers deals with efficiency of small businesses. Logically the effort has been directed on finding some general performance criteria, which would include traditional money values, and the new ones, such as Balance Scorecard or EFQM. The research project at the UEA has proven overall tendency to models, which are more complex and cover not only monetary criteria but the overall activity of the firms. The authors [5],[8], define development potential as a set of tangible and intangible factors

directly influencing contemporary and the future success of a company. Development potential in this interpretation is a vector of six components describing basic areas of a company's activities Strategy and Planning, Marketing, Production Processes and Product Development, Quality and Environment, Logistics, Managing Human Resources, Support of MIS for Integration of All Informational Activities. Within each component, six characteristics follow. The definition of development potential and its components was by field research using the structured questionnaire. A sample used in the research consisted of fifty companies active in different industries in North Moravia and five companies from the Pilsen region. Conclusions presented further in this study are based on data acquired from fifty companies from the following industries: 13 – rubber and plastics, 20 – machinery, 12 – steel and steel products, 5 – mechanical engineering.

The development potential assessment was performed in three steps. In the first step, the development potential of individual components was evaluated. In the second step, the overall assessment was determined and in the third step the classification of the company was done according to its overall assessment and put into one of the four categories (C, AB, B, A).

**Keywords:** *small businesses, start ups, government support, measurement of performance, development potential, product development, venture capital*

## Introduction

There are over 15 millions unemployed people within the EU and tens of millions worldwide. Many scientific papers presented at the ICSB World Conference 2005 in Washington concluded in their findings that there is overall world tendency for decrease in the new start-ups. This tendency has been confirmed in the research studies performed at the European Universities as well as at the USA Universities. To cope with these two problems would ask for more international cooperation and more research in finding effective solutions. The SMEs perform in the same global environment as big MNC but there are specific problems that affect SMEs more than larger businesses:

- they have more difficult access to capital and conclusively they can't invest in technological advancement;
- they have weaker position in acquiring state contracts;
- they don't have enough financial means to have top experts on their payrolls;
- the system approach to a product development is not generally practiced;
- they have to compete very often with dumping prices of multinational corporations;
- they do not possess enough expertise to follow and interpret the impact of a steady inflow of new laws, regulations and prescriptions which create a difficult business environment in the Czech Republic. (They often have to hire a specialized consulting agency in order to obtain funding from the EU, because of complexities of the application procedure).

Regardless of these barriers, SMEs represent a formidable economic force, creating 37% GDP of the CR and providing employment for 60% of the labor force. Some selected indicators can be seen in the Table 1.

There has been steady effort on part of the Czech Government and the EU administration to create funds and subsidies to support small businesses. See Table 2.

Corresponding to the funds provided by the EU does Czech Government organizes several supporting programs. Among most important are considered the Operational Program for Industry and Entrepreneurship (OPPP). It consists of the following separate parts:

- START – supporting the start-ups;
- CREDIT – providing capital for development projects inclusive purchase of equipment and fixed assets;
- PROSPERITY – co-financing creation of business centers, incubators and infrastructure;
- REALITY – aims at regeneration of industrial parks, real investment property etc.;
- EDUCATIONAL FACILITIES – modernization and creation of informational infrastructure for educational purposes;
- CLUSTERS – support for networking of regional branch entrepreneurial groups;

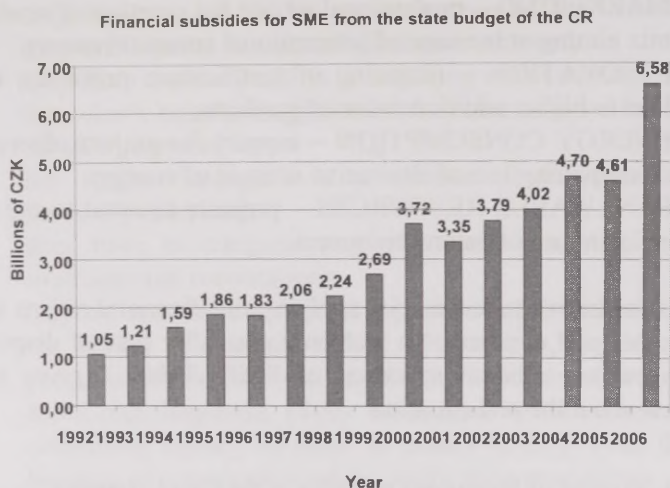


- MARKETING – professional advice for creation of marketing mix aiming at increase of international competitiveness;
- INNOVATION – financing of certification processes which lead to higher addition value of products;
- ENERGY CONSUMPTION – support for projects decreasing or supporting use of alternative sources of energy;
- RENEWABLE RESOURCES – projects directed to the more efficient use of natural resources.

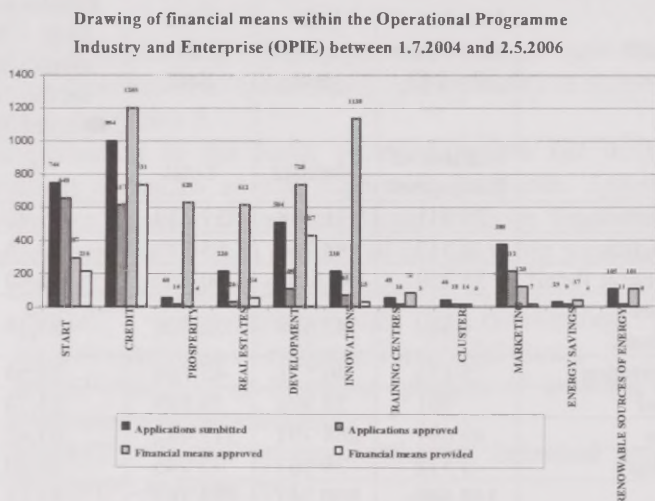
The administrative processes for applying this financial means are so complicated and cumbersome that only a smaller part of disposable money reaches a broad spectrum of SME. Table 3 gives us an overview about the real situation.

**Table 1.** Number of Employees of SMEs in the Czech Republic  
(The data put together from the statistics of the Czech Ministry of Industry and Trade, [www.mpo.cz](http://www.mpo.cz).)

Year 2003	Number of Employees 0 – 249	Self-employment	Total SME + Self	The Share of Employees of SME + Self-employment on the Total Employed Workers
	Number of Businesses	Number	Total	%
Manufacturing	25 641	131 608	157 249	49,70
Construction	6 517	88 756	95 273	80,18
Wholesale & Retail	55 250	194 8 57	250 107	80,40
Groceries / Restaurants	4 689	47 639	52 328	89,34
Transportation	5 173	40 531	45 704	29,93
Financial	901	28 998	29 899	21,74
Services	46 691	268 791	315 482	81,45
Agriculture	3 578	39 167	42 745	85,00
Total	148 440	840 347	988 787	62,21



**Figure 1.** Financial support for SMEs from the CR state budget  
(The data put together from the statistics of the Czech Ministry of Industry and Trade, [www.mpo.cz](http://www.mpo.cz).)



**Figure 2.** Initial use of financial means provided within the frame of OPPI in the period of July 2004 to May 2005.

(The data put together from the statistics of the Czech Ministry of Industry and Trade, [www.mpo.cz](http://www.mpo.cz).)

Which criteria should be used in order to make the selection process easier? Which projects should be supported? SMEs applying for the state support have to fulfil special criteria along with selected economic criteria. Those not succeeding in getting state support have to turn their requests to the private capital. But capital owners require more sophisticated measures and guarantees before they decide to participate. Most new companies wither and die in their first few years, leaving their investors in uncertainty. There has to be expected profit or at least growing potential in the project. The search was never easy. Once, business would have turned to venture capitalists, who invest money in return for a stake in the enterprise. But many are no longer interested in deals unless they are persuaded that it creates high added value. Even traditional providers of capital for start ups ("three FS") – family, friends and fools would hesitate in investment that does not generate return on invested money. And the alternative source – business angels- is almost unknown option in the transition economies. The most probable answer from the economic point of view would be – support those projects promising profitable performance.

### **1. The measurement of performance of a company**

The traditional methods of rating the company's performance have concentrated on measuring the benefits of cash inflows rather than providing an answer to the above-mentioned questions. The researchers at the East Anglia University [1] have undertaken a study to analyze the ways academic scholars analyze organizational performance or organizational effectiveness. The research study included 149 publications, published in the past decade. Out of 149, (100) dealt with business organizations, (21) with nonprofit organizations and a mix of (28) covered both activities. Independently on the type of an organization overlapping common ground issues include:

- a) Efficiency and / or productivity,
- b) Growth and / or market share
- c) Customer orientation and
- d) Quality

The most frequent criteria utilized in 149 papers can be seen in the Table 2.

**Table 2.** Common Criteria for B, Mx and NPO.

	Business	Mixed	NPO
Efficiency and / or productivity	36	16	10
Sales (total or per worker)	43	4	7
Profitability and / or shareholder return	37	11	0
Financial success	51	10	3
Employee satisfaction / Participation	20	13	7
Growth and / or market share	23	11	6
Customer orientation	25	13	7
Public image, goodwill, and / or reputation	4	4	7
Quality and / or product – Service quality	25	10	8
Social performance	0	0	7

*B = for-profit, Mx = mix of both activities, NPO = nonprofit organization*

The most frequently mentioned criterion for the B set was – financial success, for Mx and NPO quite logically – efficiency / or productivity. To cope with the diversified requirements for measurement of companies' performance have led to the development and proposal of new models such as the Balanced Scorecard [2], and also using the European model of EFQM – European Foundation for Quality Management [3] and have therefore created a new paradigm for the measurement of performance. Some research has been undertaken at the University of Economics, aimed at problems of entrepreneurial activities of SME. The first question being asked by money providers deals with efficiency of small businesses. Logically the effort has been directed on finding some general performance criteria, which would include traditional money values, and the new ones, such as included in Balance Scorecard or EFQM. The research project at the UEA has proven overall tendency to models, which are more complex and cover not only monetary criteria but the overall activity of the firms.



## 2. The First Experimental Research [4], Using EFQM – Small Sample

For the first pilot study project the EFQM model was used and a sample of two companies was acquired for implementation. (The short description of the EFQM follows).

1. Leadership (100 points) – mission, ethical code of behavior, delegation of authority, structure, relationship with customers, performance appraisal.
2. Policies & Strategy (90 points) – how the strategy was implemented. The overall work for supporting the information system. Effectiveness of market research and its use for market prognosis and consumer behavior. Internal reporting system and its organization.
3. Human Resources (90 points) – planning, recruiting and skills development of employees.
4. Partnership & Resources (90 points) – partnership with suppliers and community. Effective use of financial resources, financial strategy, investment in technology, R&D.
5. Processes (140 points) – how well are the main processes organized? The detailed description of processes, parameterization of processes and its outputs. ISO 9001. Services and customers.
6. Customer Satisfaction (200 points) – quality, safety and reliability of a firm's product, customer loyalty, CRM.
7. Results Concerning Employees (90 points) – motivation and transparent options for promotion. Performance appraisal of individual's effort. Working environment
8. Results Concerning Social Responsibility (60 points) – *image* in the public, corporate social responsibility, environmental protection.
9. Performance and Results (150 points) – summarization of key results covering:
  - Financial performance i.e., cash flow, liquidity, EPS, sales, revenues, net profit,
  - Intangibles, expertise, knowledge – based progress etc.

### Target Company: AXIS Ltd.

Axis Ltd. is a company well established on the Czech market, belonging to the SME group, producing a broad spectrum of steel products – production of steel constructions, technological facilities, high pressure pots, reconstruction of machinery equipment, assembly of gas equipment, machine tool shaping etc.

The company was subject to a certification process in 1999 according to ISO 9001 norm, and gained the corresponding certificate. This research study has made use of a standardized questionnaire of EFQM, recommended by National Centre for Quality. The questionnaire consisted of fifty questions, which were to be answered using a self-assessment procedure. The answers had to follow four grade evaluations:

- A. Fully accomplished – excellent process or result, fully implemented.
- B. Considerable progress – giving enough space for improvement.
- C. Moderate progress – needs further research. Bringing good results if implemented.
- D. There are no measurable results. There are some good ideas which were not seriously reviewed or practiced.

The self-assessment process has been implemented at the top and middle management levels of the company. The results of the overall evaluation can be seen on figure 3.

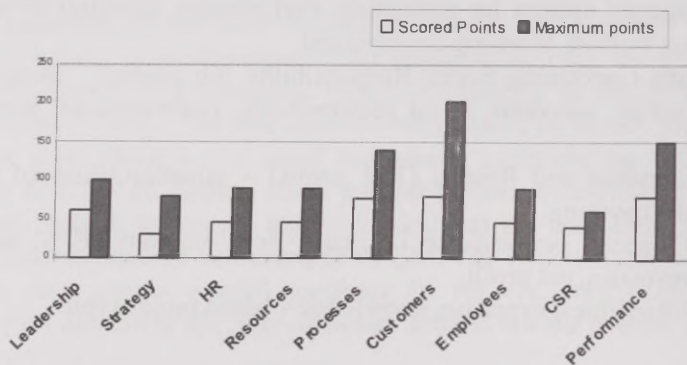


Figure 3. AXIS – Assessment According 9 Criteria of EFQM

## **Conclusions**

Managers of AXIS have to direct their attention to the improvement of customer satisfaction or to implement a system of CRM. The next recommendation would be to pay more attention to create a clear and effective strategy concerning main firm processes.

### **3. Development Potential of a Company, an Alternative Approach to Measurement of Successful Performance**

The authors [5],[8], define development potential as a set of tangible and intangible factors directly influencing contemporary and the future success of a company. Development potential in this interpretation is a vector of six components describing basic areas of a company's activities. Within each component, six characteristics follow. The model had been originally developed at the University of West Bohemia in the U-SME innovation project, supported by the Leonardo da Vinci programme of the EU [6]. The definition of development potential and its components was followed by field research using the structured questionnaire. A sample used in the research consisted of fifty companies active in different industries in North Moravia and five companies from the Pilsen region. The Faculty of Management of Tomáš Baťa University in Zlín performed field research in North Moravia in the second quarter of 2002 [6] and it was continued by the collection of data from more companies in both regions. Conclusions presented in this study are based on data acquired from fifty companies from the following industries: 13 – rubber and plastics, 20 – machinery, 12 – steel and steel products, 5 – mechanical engineering. For the description of DP have been used the following components:

- **Strategy and Planning:** strategic control system, mission and vision of a company. Awareness and sharing a vision by employees.
- **Marketing:** marketing costs can be today as high as 50% of total expenses. It is traditionally the weakest point of many Czech companies. The following factors were subject to analysis: market research, market positioning, competitor's analysis, and advertising.



- **Production Processes and Technology:** does the company follow its competitors or does it set up a trend? Is there an internal innovation centre, or does the firm make use of licenses? How is the innovation process organized? How is the technological development and its applications in products and production processes implemented? Although innovation is a central issue discussed in connection with the development potential, innovation itself is not a goal, but only a tool in achieving company goals.
- **Quality and Environment:** these are assessed in relation to EN ISO standards. Quality goals are measurable and consistent with the quality strategy. From a microeconomic point of view, the environment is treated as a public good or negative externality.
- **Logistics:** (Supply Chain Management) – complete system of planning, organizing, realizing and controlling the flow of goods. The role of outsourcing and its impact on lowering (increasing) costs.
- **Managing Human Resources. Support of MIS for Integration of All Informational Activities i.e. approaches** to information processing and use of Internet technologies. Motivational systems, learning processes, company culture and knowledgeable management.

The development potential assessment was performed in three steps. In the first step, the development potential of individual components was evaluated. In the second step, the overall assessment was determined and in the third step the classification of the company was done according to its overall assessment and put into one of the four categories (C, AB, B, A). The classification of companies into the corresponding categories was done according to a set of European Standards – EN ISO 9000:2000, which specifies the rules and system terminologies and on the British norm BS 7000-1:1999, providing a manual for management of development processes and innovations in long time periods. The classifications of companies according to their development potential are shown in the following (Table 3.)



**Table 3.** The Classification of Companies According to their Development Potential

Evaluation of Development Potential	Type of Company according to its Development Potential
1.00 – 1.49	<b>C</b>
1.50 – 2.49	<b>AB</b>
2.50 – 3.49	<b>B</b>
3.50 – 4.00	<b>A</b>

Companies classified as C are not ready to implement development activities, to improve their performance and to better satisfy their customers. If they want to develop, they should first implement fundamental changes in their organization and other basic company processes. Companies classified as AB are prepared to complete changes necessary for improving their performance, but must consistently improve their basic processes. Management training can help to achieve long-term goals. Companies classified as B can employ and further develop their potential and they are prepared to undergo a certification process according to corresponding ISO standards. Class A includes companies with the highest development potential, highly competitive, high performers successful in mid- and long-term horizon. Nine of these companies were classified as AB, twenty-seven as B, fourteen as A. There was no company classified as C. The total average achieved in the four-point scale was 3.06. The results were processed using one- and multi-dimensional statistical analysis.

### **Multidimensional Regression Analysis**

In multidimensional regression analysis, the development potential was treated as a dependent variable, while its components were treated as independent variables. The resulting regression model had the following form:

$$\begin{aligned} DP = & -0.0037 + 0.1809 * \text{Quality and environment} \\ & + 0.1683 * \text{Logistics} \\ & + 0.1938 * \text{Marketing} \\ & + 0.1488 * \text{Information systems and human resources} \\ & + 0.1775 * \text{Strategy and planning} \\ & + 0.1305 * \text{Production processes and technology} \end{aligned}$$

## Conclusions

The development potential includes factors which can be influenced by the company owners and managers. They had a considerable effect on the financial performance and correlate with value creation. Although marketing is the most sensitive factor, its values in the sample were the lowest. It confirms the general experience, that Czech companies generally have a lack of marketing expertise and do not collect information about customer's behavior. (Confirmed also by conclusions of the AXIS case). Production processes and the technologies components achieve the highest values. For firms in the sample this component is of the highest importance. It was demonstrated that this component provides the best one-component estimate of the total development potential and its correlation with ROE is the strongest. Companies having leading positions in technology and having high quality products attract employees and satisfy their customer's needs. Strategy and planning component significantly influences classification of the companies according to their development potential, but its explaining power is low. It confirms that the dependence between the performance measurement and the strategy is rather weak. Correlation analysis has proven to be a both-sided statistical dependence between the development potential and ROE. It indicates that, when DP is growing, the value of the invested capital by company owners is also growing. The results had demonstrated that the company with a higher DP has the potential to satisfy its customers, owners and other stakeholders. Finally, an important precondition for implementation of the DP assessment procedure is the understanding, learning and willingness of companies' management to practice it.

## The Development Potential of Czech SME – Enlarged Sample

Enlarged Sample of SMEs and their characteristics: The sample consisted of 95 SMEs [7], which were described by following characteristics:

Number of Employees:

- a) 1–9 ( 32 % of the sample)
- b) 10–49 ( 32 % of the sample)
- c) 50–250 (31 %)
- d) N/A (5 %)

## Sales in 2002:

- e) a) < 250 mil. Czech crowns (69%)
- f) b) 250–1.450 mil (14%)
- g) c) more ( 16%)
- h) d) N/A (1%)

## SME by Industry:

- i) Retailing
- j) Services
- k) Building
- l) Machinery
- m) Electronics
- n) Metal industry
- o) Chemical and pharmaceutical
- p) Food and beverages
- q) Agriculture
- r) Power engineering
- s) Wood processing
- t) Textile and clothing industry
- u) Transportation
- v) Insurance
- w) Other
- x) N/A- not filled in ( or performing more different activities)

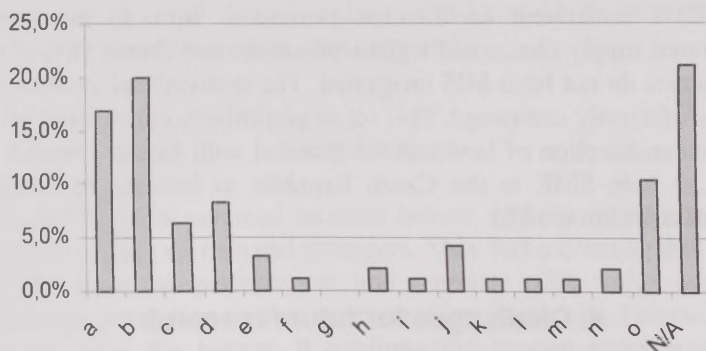


Figure 3. SME by Industry

## Production Is Aimed at:

- y) Domestic market (56%)
- z) International market (0%)

aa) Both (43%)

bb) N/A (1%)

### **The Evaluation of Development Potential of Czech SME – Enlarged Sample**

In the third stage the same questionnaire was used to examine 95 SMEs (heterogeneous group). The same six characteristics correspond with categories used in the second research study were chosen.

### **Conclusions**

The last phase of research is still taking place, so we can make some preliminary conclusions. The same questionnaire has been used as in the previous stages as well as the same self assessment technique, so the conclusions are fully comparable. It gives us a sample of 145 SMEs covering a broad spectrum of companies. The latest evaluation has brought evidence that more than 50% of the companies do not create any vision and corresponding strategy (though we have proven that the dependence between performance measurement and the strategy is rather weak). More than 30% do not perform marketing activities and do not practice CRM. Almost 50% of sample companies produce using licenses or copying products. Only 50% of companies make use of their own R&D for the products innovations. Just 28% underwent certification processes, 70% do not create integrated supply chains and logistic processes and almost 50% of the companies do not have MIS integrated. The motivational systems are not satisfactorily composed. This set of preliminary conclusions gives us a clear direction of how can we proceed with further research in order to help SME in the Czech Republic to increase its competitiveness within the EU.

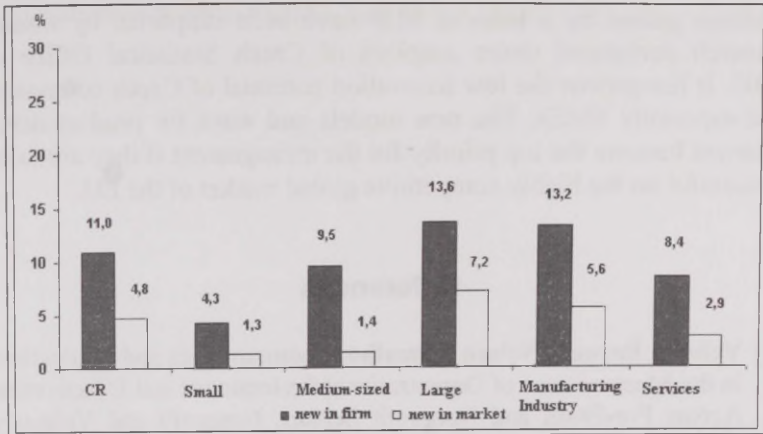
## **4. Challenges for future research**

### **• HOW TO IMPROVE PRODUCT DEVELOPMENT?**

The presented research findings gained by a team of EUP have been supported by similar research performed under auspices of Czech Statistical Office in 2003. It has proven the low innovation potential of Czech companies and especially SMEs. The new models and ways



for product development become the top priority for the management if they are to be successful on the highly competitive global market of the EU.



**Figure 4.** Innovation activities of companies expressed as % of sales from innovated products on the company sales in 2002–2003.

- **THE PSYCHOLOGICAL FACTORS AND PERSONAL ATTRIBUTES NECESSARY FOR SUCCESSFUL MANAGEMENT OF SME.**

The Czech Business Schools will have to focus on the development of more courses, focused on entrepreneurship.

## Conclusions

The development potential includes factors, which can be influenced by the company owners and managers. They had a considerable effect on the financial performance and correlate with value creation. Although marketing is the most sensitive factor, its values in the sample were the lowest. It confirms the general experience, that Czech companies generally have a lack of marketing expertise and do not collect information about customer's behavior. Production processes and the technologies components achieve the highest values. For firms in the sample this component is of the highest importance. It was demonstrated that this component provides the

best one-component estimate of the total development potential and its correlation with ROE is the strongest. Companies having leading positions in technology and having high quality products attract employees and satisfy their customer's needs. The presented research findings gained by a team of EUP have been supported by similar research performed under auspices of Czech Statistical Office in 2003. It has proven the low innovation potential of Czech companies and especially SMEs. The new models and ways for product development become the top priority for the management if they are to be successful on the highly competitive global market of the EU.

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# CORPORATE CAPITAL AND ITS STRUCTURE IN LATVIA

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## Abstract

The paper summarizes the results of the research on the structural change trends of the capital involved in the business of Latvia. The obtained results have been compared to the dynamics of the change in the corporate capital structure in Estonia and Lithuania. The change in the capital structure has also been studied in the cross-section of the branches of national economy. Based on the study the author concludes that over 10 years the capital structure in the business of Latvia has changed in accordance with the rules of market economy.

**Keywords:** *equity, borrowed capital, return on equity, return on assets*

The development of efficient structure of the sources of funds for financing the necessary volumes of expenses and ensuring the desirable level of income is considered the key problem of financial management. The more efficiently the capital structure is chosen the more successfully the business will be able to operate.

The important role of the capital structure in the context of corporate management and the fact that in Latvia, unlike the countries with a well-developed market economy, the practical research on capital structure and its influence on business are not yet sufficiently made provide that the topicality of the theme of the paper does not limit itself to the author's personal interest in the funding policy of Latvian businesses.

Thus the aim of the paper is to carry out the analysis of the structure of the capital involved in business in Latvia to make



conclusions on the situation that has developed as well as design recommendations based on the research that would facilitate adoption of rational decisions on financing a business.

For dealing with the tasks of the paper the author has used the methods of economic and statistic analysis. Thus the author has compared and grouped data as well as calculated the necessary financial indicators and relative amounts to ensure that the obtained results would as precisely as possible establish the existing situation. For better perception the author has also applied some graphical methods.

The regularities of the economic theory as well as empirical observations on corporate capital dynamics suggest that along with the increasingly huger development volumes the proportion of the borrowed capital in the assets increases. A similar trend can be seen in Latvia. Over 10 years the corporate capital structure has changed in accordance with the rules dictated by market economy. Thus at the beginning of the period – in 1995 assets were dominated by equity, however at the moment the situation is completely opposite – assets are dominated by borrowed capital. This is due to the fact that over all these years, i.e., in the period from 1995 to 2004 borrowed capital was being drawn in funding business activity much faster than equity. As it can be seen in table 1, in 2004 in comparison to the beginning of the period of study equity has more than doubled, however, the dynamics of the borrowed capital is still more rapid – in 2004, compared to 1995, it has increased 4.4 times.

The diverse growth dynamics of equity and borrowed capital has changed their proportion in assets as well. In the period from 1995 to 2004 in Latvia the proportion of the borrowed capital in assets has increased from 43.6% to 59.1% which happened on the account of equity decrease – in the period of study it fell from 56.4% to 40.9% (table 2).

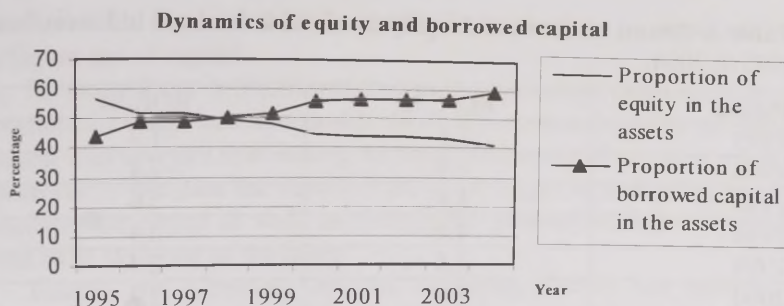
The point of change can be considered to be year 1998 when borrowed capital started to dominate the corporate capital structure (see figure 1).

**Table 1.** Dynamics of equity and borrowed capital in Latvia from 1995 to 2004 [2–11]

Year	Equity			Borrowed capital		
	mln LVL	% to 01.01.2005	% to the previous year	mln LVL	% to 01.01.2005	% to the previous year
1995	2362.6	100.0	—	1826.8	100	—
1996	2329.1	98.6	98.6	2214.5	121.2	121.2
1997	2850.4	120.6	122.4	2695.4	147.5	121.7
1998	3391.3	143.5	119.0	3438.7	188.2	127.6
1999	3491.5	147.8	103.0	3742.8	204.9	108.8
2000	3571.3	151.2	102.3	4472.8	244.8	119.5
2001	3827.9	162.0	107.2	4923.5	269.5	110.1
2002	4121.0	174.4	107.7	5331.1	291.8	108.3
2003	4849.8	205.3	117.7	6346.2	347.4	119.0
2004	5524.3	233.8	113.9	7969.1	436.2	125.6

**Table 2.** Proportion of equity and borrowed capital in the assets in Latvia in the period from 1995 to 2004. [2–11]

Year	Proportion of equity in the assets, %	Proportion of borrowed capital in the assets, %
1995	56.4	43.6
1996	51.3	48.7
1997	51.4	48.6
1998	49.7	50.3
1999	48.3	51.7
2000	44.4	55.6
2001	43.7	56.3
2002	43.6	56.4
2003	43.3	56.7
2004	40.9	59.1



**Figure 1.** Dynamics of equity and borrowed capital in the percentage of the assets in Latvia from 1995 to 2004. [2–11]

From the theoretical point of view if borrowed capital is available to businesses in a sufficient amount and for a smaller price than equity the growth of the proportion of borrowed capital makes a positive impact on the process of business development. The application of borrowed capital also assists in maximizing the business owners' wealth under the condition that the return on assets exceeds the average interest rate on loans.

Based on the capital structure change trends described above it is important to establish whether the corporate decisions on raising borrowed capital have been well-grounded from the economic point of view, i.e., whether they have been based on skilful usage of the effect of financial leverage, or they have just been led by the need of capital for further provision for their operation and the availability of funds in the financial market disregarding the probability that the using of borrowed capital costs more than the business ability to earn. To find this out it is possible to calculate and compare the return on equity (ROE) and return on assets (ROA). To determine ROA it is recommended to use the calculation method that implies referring the after-tax profit of the year of account and the interest paid for using borrowed capital to the average capital (assets) of the period. However, ROE is determined as a proportion between net profit and the average amount of equity. The calculations on ROA and ROE in Latvia are summed up in table 3.

**Table 3.** Return on assets and equity involved in business in Latvia from 1995 to 2004.

Period	ROA, %	ROE, %
1995	1.3	-1.2
1996	0.9	-2.1
1997	4.8	5.6
1998	4.0	3.4
1999	3.5	2.4
2000	3.6	2.7
2001	4.9	5.9
2002	4.7	5.7
2003	5.5	7.9
2004	7.6	13.2

It must be concluded that in the period of study the dynamics of the return change indicators was rather irregular, although a growth trend could be observed. In the period from 1995 to 2004 ROE had fluctuated in the range from -2.1% to 13.2%, however ROA had fluctuated in the range from 0.9% to 7.6%. In essence ROA shows the amount of profit gained per one lat of assets (investments). In our case if we take year 2004 as an example we can conclude that businesses have gained in average 7.6 santims of profit per one lat of capital. However ROE allows for determining the efficiency of using the capital invested by the business owners. From owner point of view this is the most important return indicator. It shows how much profit has been gained per 1 lat invested in the company by owners. Thus, for example, in 2004 in average among businesses per 1 lat invested by owners the profit of 13.2 santims was gained.

More intensive involvement of borrowed capital in funding business in Latvia has been economically justified over last four years of the study (2001 – 2004) when ROE exceeded ROA that essentially means that in the years with such performance indicators business owners earn on the account of creditors.

The periods when ROE has been lower than ROA suggest that borrowed capital has been so expensive that businesses have had to pay interest not just from the profit brought by the borrowed capital, but also to channel a part of profit provided by equity for this purpose. At the beginning of the period of study – in year 1995 and 1996 – ROE was even negative which means that businesses have



worked with losses – in this case it is impossible to speak about efficient use of capital.

However there is likelihood that in the period till 2001 the use of borrowed capital was favourable from the economic point of view, taking into account that among Latvian businesses there was a trend observed to decrease the reported profit. A bigger actual profit would increase the return as well as change the proportion between ROA and ROE in favour of the latter.

Estonia and Lithuania are the countries Latvia has particular relations with which are based on common historic experience and culture heritage. Namely for this reason the author has chosen the corporate capital structure of these countries to be compared to Latvia.

The amount of the capital used in business in Estonia and Lithuania, like in Latvia, is increased year by year that suggests business development. From table 4 it can be concluded that the growth rate of borrowed and equity capital in the Baltic States is rather similar in the percentage. A difference can be seen in the fact that over all the period of study the growth rate of borrowed capital in Latvia has exceeded the growth rate of equity capital, which cannot be said about the two other countries. In Estonia the drawing of borrowed capital in funding business has been very rapid in some years, like 1997 and 2004, however in other ones it has been slower. What concerns Lithuania, it is generally difficult to judge about capital changes there as the data collected by the Statistics Department of Lithuania cover the period from 2000 to 2003 which is too short and cannot serve as a basis for general conclusions.

A certain similarity in the dynamics of the Baltic States capital can be seen at the end of 1990s when a sharp fall of the equity and borrowed capital growth was observed. Such a trend could be explained by the fact that after August 1998 when a strong influence of the Russian crisis was felt in the Baltic region the production and service delivery volumes of many businesses significantly shrunk and some business people were even forced to discontinue their business. Along with that the need for raising additional capital in some places automatically disappeared.

**Table 4.** Dynamics of Equity and Borrowed Capital in the three Baltic States from 1995 to 2004 [2–11;22,1; 23,1]

Year	Equity capital in percentage to the previous year			Borrowed capital in percentage to the previous year		
	Latvia	Estonia	Lithuania	Latvia	Estonia	Lithuania
1995	—	...	...	—	...	...
1996	98.6	—	...	121.2	—	...
1997	122.4	128.5	...	121.7	145.6	...
1998	119.0	135.1	...	127.6	117.5	...
1999	103.0	112.5	...	108.8	107.7	...
2000	102.3	122.1	—	119.5	111.3	—
2001	107.2	112.7	102.4	110.1	116.8	106.7
2002	107.7	116.2	112.7	108.3	111.3	106.4
2003	117.7	127.1	108.4	119.0	112.2	110.8
2004	113.9	128.7	...	125.6	129.4	...

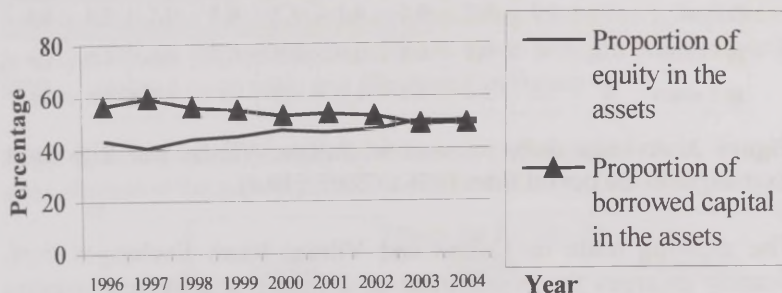
Considering the change trends of business capital all three Baltic States demonstrate significantly high business capital growth rates. However of our interest might be the impact of the growth rate on the mutual structure of the proportion of equity and borrowed capital in assets (see table 5).

**Table 5.** Proportion of equity and borrowed capital in assets in Latvia, Estonia and Lithuania from 1995 to 2004, %. [2–11; 22,1; 23,1]

Year	Proportion of equity in assets, %			Proportion of borrowed capital in assets, %		
	Latvia	Estonia	Lithuania	Latvia	Estonia	Lithuania
1995	56.4			43.6		
1996	51.3	43.5		48.7	56.5	
1997	51.4	40.5		48.6	59.5	
1998	49.7	43.9		50.3	56.1	
1999	48.3	45.0		51.7	55.0	
2000	44.4	47.3	54.1	55.6	52.7	45.9
2001	43.7	46.4	53.1	56.3	53.6	46.9
2002	43.6	47.4	54.5	56.4	52.6	45.5
2003	43.3	50.6	53.9	56.7	49.4	46.1
2004	40.9	50.4		59.1	49.6	

As it can be seen from data in table 5, in Estonia the proportion of equity capital in total assets has increased by 6.9 percentage points over nine years. Moreover, starting from year 2003 it gained the dominating role in the corporate capital structure (see figure 2). Also the Lithuanians, unlike the Latvians, prefer equity rather than borrowed capital in financing their business. However, it would be too early to conclude that the use of the borrowed capital has been insufficiently active and the corporate capital structure has not corresponded to the rules of market economy in Estonia and Lithuania over these years.

### Dynamics of equity and borrowed capital

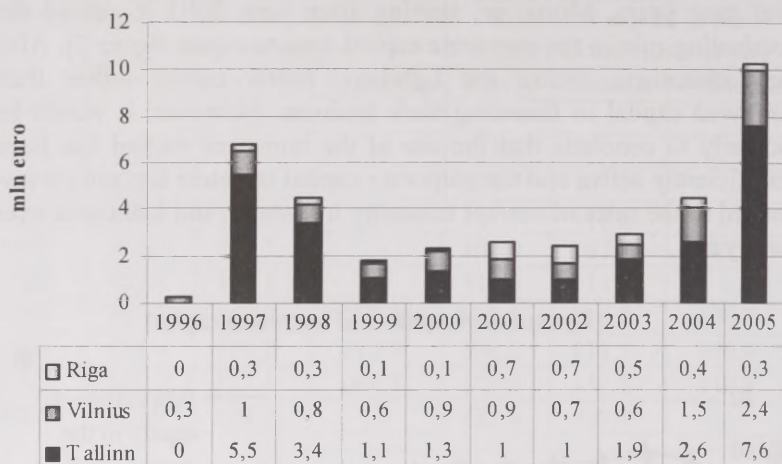


**Figure 2.** Dynamics of equity and borrowed capital in percentage of assets in Estonia from 1996 to 2004. [22,1]

The Author believes that the rapid involvement of equity capital in funding business in the neighbouring countries of Latvia has been facilitated by the following factors:

Firstly, stock market turnover. It must be said that in the period from 1997 to 2005 the biggest activity was observed in the Estonian stock market (figure 3). In 2005 the average daily turnover in the Tallinn Stock Exchange reached 7.6 mln euro thus exceeding the respective level of Riga Stock Exchange 25 times. According to some Latvian experts the activity in the stock market of Latvia is approaching zero.

## Average daily turnover



**Figure 3.** Average daily turnover in Tallinn, Vilnius and Riga Stock Exchanges in the period from 1996 to 2005. [19,1]

The growing trade in Tallinn and Vilnius Stock Exchanges significantly enlarges the possibilities of domestic and foreign investors thus creating objective grounds for the growth of the proportion of equity capital in the corporate assets.

Secondly, direct foreign investments. According to the international terminology direct investments are investments of the resident of one country (direct investor) in a company of other country (direct investment company) if the resident's participation in the company equity is 10% and more. Direct foreign investments include investments in the equity of the businesses registered in the particular country, reinvested profit as well as investments in other capital of the businesses [13,1]. According to this definition the inflow of the direct foreign investment in the country increases the volume of the equity capital involved in business.

At the moment the direct investments invested in Latvia have reached approximately 4bln euros, however in Latvia and Estonia the figure is still bigger – respectively 10.37 and 5.45 bln euros. In Estonia the comparatively higher level of direct investments accounts for the investors of Sweden and Finland. As Estonia is closer to



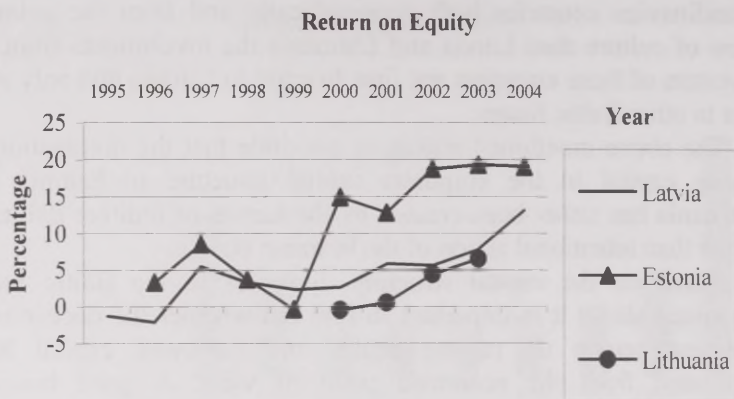
Scandinavian countries both geographically and from the point of view of culture than Latvia and Lithuania the investments from the investors of these countries are first directed to Estonia and only after that to other Baltic States.

The above mentioned makes us conclude that the domination of equity capital in the corporate capital structure in Estonia and Lithuania has rather been created by the factors of indirect influence rather than intentional action of the business people.

Based on the capital structure dynamics in the Baltic States examined above it is important to find out whether the decisions of business people on raising equity and borrowed capital have motivated from the economic point of view. A good business performance indicator is represented by its profit. When comparing ROE indicators in Latvia and its neighbouring countries it is possible to tell to whom the invested resources have brought more benefit. ROE is summed up in table and illustrated in figure 4.

**Table 6.** Return on equity capital drawn in business in Latvia, Estonia and Lithuania in the period from 1995 to 2004. [2-11; 22,1; 23,1]

Period	Return on Equity. %		
	Latvia	Estonia	Lithuania
1995	-1.2		...
1996	-2.1	3.4	...
1997	5.6	8.6	...
1998	3.4	3.8	...
1999	2.4	-0.3	...
2000	2.7	15.0	-0.4
2001	5.9	12.9	0.6
2002	5.7	18.8	4.5
2003	7.9	19.4	6.6
2004	13.2	19.1	...



**Figure 4.** Dynamics of return on equity in the three Baltic States from 1995 to 2004. [2–11; 22,1; 23,1]

As it can be seen in the period since 1996 the ROE of Estonian businesses in comparison to those of Latvia and Lithuania has been higher with the exception of year 1999 – the Estonians have used their invested equity capital much more effectively than the Latvians and Lithuanians. If in Latvia ROE fluctuated in a small range, not exceeding the 7% barrier, then in 2003 in Estonia it reached 19.4 %, which is an appreciable indicator. In Latvia ROE was neither particularly high, not low in the period of study, however, in 2004 it grew to 13.2 thus exceeding the most optimistic forecasts.

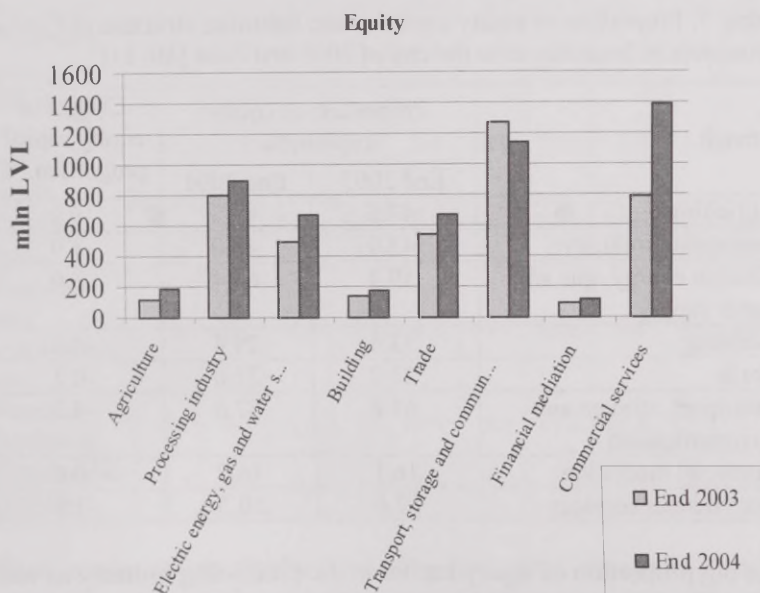
The author concludes that Estonian businesses are still far ahead those of Latvia and Lithuanian in the efficient management of the capital needed for business.

For the purposes of further analysis of the corporate capital structure the information was used on the cross-section of the most important branches of economy in Latvia. The selection criterion used was the balance sheet value of the assets of every particular branch that in the author's opinion indicates at the importance of the given branch in the national economy. Out of the 15 branches indicated in the data collections of the Central Bureau of Statistics of the Republic of Latvia the biggest ones are [11]:

1. trade;
2. commercial services;
3. processing industry;

4. transport, storage and communication;
5. electric energy; gas and water supply;
6. financial mediation;
7. building;
8. agriculture.

At the end of 2004 the value of equity capital in the liabilities of business balance sheet reached its historic mark of 5524.3 mln lats (see table 1). In 2004 the growth of equity capital could be seen in all analyzed branches of economy with the exception of transport, storage and communication where its volume decreased from 1268.8 to 1146.5 mln lats over one year (figure 5), however at the end of the period of study it was one of the highest. Similarly this source of funding operation resources was also actively used in the branches of commercial services and processing industry.



**Figure 5.** Volume of equity capital of Latvian businesses over branches of economy at the end of 2003 and 2004.[10–11]

Concerning the percentage relation of equity and borrowed capital in the total liabilities of Latvian businesses it must be pointed out that lately a decreasing trend of equity capital is observed as its growth rate significantly falls back to that of the borrowed funds. In the period from 31 December, 2003 to 31 December, 2004 the proportion of equity capital significantly decreased in such branches as transport, storage and communication – by 4.2 percentage points and in building by 4.0 percentage points (table 7). Overall only in three branches – electric energy, gas and water supply; transport, storage and communication as well as commercial services – the proportion of equity capital exceeded the margin of 50% in total liabilities at the end of 2004. This is certainly to be considered a positive fact as the pay-off period of investments in these branches is rather long. In the rest of branches the proportion of the borrowed capital and its volume in absolute terms exceeded those of equity capital several times.

**Table 7.** Proportion of equity capital in the liabilities structure of Latvian businesses in branches as to the end of 2003 and 2004 [10–11]

Branch	Proportion of equity capital, %		Change of equity capital proportion, %
	End 2003	End 2004	
Agriculture	47.6	46.7	–0.9
Processing industry	43.9	42.0	–1.9
Electric energy, gas and water supply	59.4	61.4	2.0
Building	33.4	29.4	–4.0
Trade	21.2	21.0	–0.2
Transport, storage and communication	61.8	57.6	–4.2
Financial mediation	16.1	16.7	0.6
Commercial services	52.0	50.5	–1.5

The big proportion of equity capital in the processing industry as well as in transport, storage and communication can be explained by the fact that businesses of these branches unwillingly draw in borrowed capital in large volumes and as a result they need large equity capital. Uncertainty that exists in these branches with a cyclical operation character as well as their uninterrupted orientation to research work, high proportion of fixed assets in assets and slow turnover of current



assets serve as basis for the increased proportion of equity capital in the assets. That is the reason why the increasing of borrowed capital is risky for these businesses and consequently not useful.

It is important to establish not only the amount and proportion of equity in assets used in Latvia, but also the effectiveness of using it. However, after the survey of the Latvian branches of economy we must conclude that ROE is very uneven over branches. When comparing the ROE of the analyzed branches the calculation results obtained provide the following picture – in all the period of study in Latvian economy only the branch of building has been able to maintain a positive return (table 8).

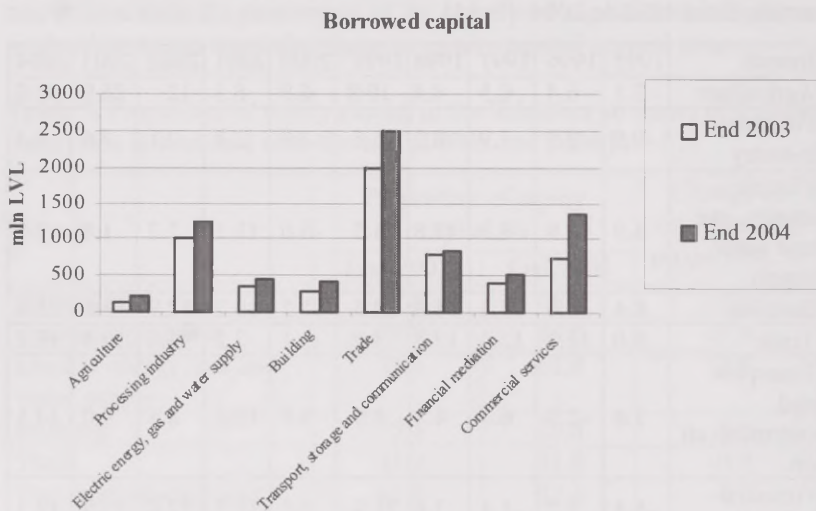
**Table 8.** Profitability of equity of Latvian businesses in branch cross-section from 1995 to 2004. [2–11]

Branch	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Agriculture	-3.1	-6.4	-0.5	-4.4	-10.8	6.9	6.3	12.	26.9	35.0
Processing industry	-9.5	-7.9	3.9	-8.3	-5.1	-1.9	2.4	7.1	7.6	8.4
Electric energy, gas and water supply	4.9	-2.9	8.1	17.8	3.5	-6.0	10.1	5.2	1.8	7.0
Building	8.4	16.6	23.1	31.6	22.6	15.5	13.2	12.9	18.6	21.6
Trade	9.0	12.3	12.4	12.2	7.0	-1.1	2.2	4.4	10.4	19.1
Transport and communication	1.6	-2.3	6.7	4.1	8.8	9.7	10.6	8.6	9.0	14.1
Financial mediation	-5.5	3.2	-1.4	3.6	21.9	5.5	11.2	17.8	15.9	17.3
Commercial services	-1.7	-0.3	0.4	0.9	0.5	-2.1	4.0	-0.4	4.8	13.4

Good equity return results have also been demonstrated by trade; transport, storage and communication; electric energy, gas and water supply as well as financial mediation branches. Agriculture and processing industry had to be assessed particularly negatively according to the ROE in the first half of the period. In year 1999 of the study period the financial return of agriculture reached its maximal negative value – minus 10.8%. It means that every invested

lat of equity created the loss of 11 santims. However in recent time the ROE of the agriculture branch has significantly improved. In 2004 it reached even 35.0 points which is the highest return value among the eight branches up to now.

For funding their assets businesses used not only the equity capital, but also borrowed funds, which in 2004 reached 7969.1 mln lats and exceeded at this the volume of equity capital by 2444.8 mln lats. This lets us argue that in Latvian businesses the main role is given to external funding sources. In 2004 the growth of borrowed capital was seen in all branches of agriculture (figure 6). In absolute figures the biggest borrowed capital was in trade – 2506.4 mln lats, in commercial services – 1355.3 mln lats as well as in processing industry – 1252.8 mln lats.



**Figure 6.** Volume of the borrowed capital of Latvian businesses in branch cross-section at the end of 2003 and 2004 [10–11]

However, if we calculate percentage proportion of the usage of the borrowed capital in the assets the picture is different – the leading position in using borrowed capital in the period of study goes to the financial mediation branch (83.3% of the total assets account for borrowed capital), trade (79%) and building (70.6%). The biggest growth of the proportion of borrowed funds in 2004, compared to

2003, was in the branch of transport, storage and communications – 4.2 percentage points.

**Table 9.** Proportion of borrowed capital in the liability structure of Latvian businesses over branches as to the end of 2003 and 2004. [10–11]

Branch	Proportion of borrowed capital, %		Change of the borrowed capital proportion, %
	End of 2003	End of 2004	
Agriculture	52.4	53.3	0.9
Processing industry	56.1	58.0	1.9
Electric energy, gas and water supply	40.6	38.6	–2.0
Building	66.6	70.6	4.0
Trade	78.8	79.0	0.2
Transport, storage and communication	38.2	42.4	4.2
Financial mediation	83.9	83.3	–0.6
Commercial services	48.0	49.5	1.5

Traditionally the proportion of borrowed capital in assets is higher in the branches with rapid money turnover – in trade and building. For example, in trade the big proportion of borrowed capital in assets (particularly long-term loans) can be explained with a regular need to fund commodity stocks. However, in financial mediation the proportion of borrowed capital is that large because of the specific character of the branch which does not require big investments in fixed assets – the money is borrowed for transferring it to other national economy subjects on better conditions.

In 2004 the creditor structure of Latvia was dominated by short-term loans and loans which accounted for 4476.5 mln lats or 57.6% of all creditor liabilities, the long-term loans respectively accounted for 3301.7 mln lats, which is 42.4% of the loan obligations [11,1].

The most frequent users of the short-term loans in 2003 and 2004 were the branches of building and trade (table 10). However, the highest proportion of long-term creditors was in the branch of electric energy, gas and water supply (in 2003 – 72.5%, in 2004 – 71.8% of the total debts), which can be explained by the fact that this branch requires long-term investment project solutions. Besides the regular

income and big fixed assets of public utilities companies serve as a good trust guarantor for the drawing of long-term funds.

**Table 10.** Division of credits and loans by the term and branches of national economy in Latvia as to the end of 2003 and 2004 [10–11]

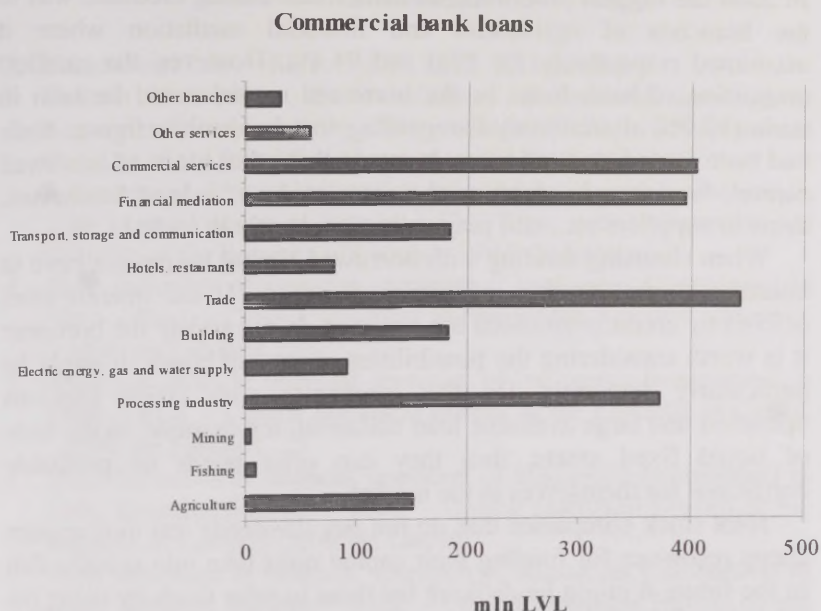
Branch	Long-term loans, %		Short-term loans, %	
	2003	2004	2003	2004
Agriculture	48.7	50.4	51.3	49.6
Processing industry	37.4	34.5	62.6	65.5
Electric energy, gas and water supply	72.5	71.8	27.5	28.2
Building	20.6	16.6	79.4	83.4
Trade	29.9	26.7	70.1	73.3
Transport, storage and communication	49.0	44.7	51.0	55.3
Financial mediation	43.4	66.4	56.6	33.6
Commercial services	53.0	62.2	47.0	37.8

An important kind of borrowed capital are bank loans as in the world bank loans as a funding instrument account for the biggest part of borrowed capital of businesses. It can be explained by the rather simple procedure for raising funds (apart from the issuing of bonds) and the rather large supply of resources (banks govern a substantial part of the global financial resources).

At the end of 2004 the volume of loans granted by the commercial banks of Latvia accounted for 4380.6 mln lats or 55.8% of the aggregate bank assets. 5094.3 lats were attracted as deposits. This means that to that moment deposits covered 1216.3% of the total loan portfolio of commercial banks [32.1].

Out of the total amount of the granted loans 3800.7 mln lats or 86.8% were granted to the country residents, including the government – 67.7% and businesses – 2406.2 mln lats, private individuals – 1310.7 mln lats and non-profit organizations that serve private individuals – 16.1 mln lats. Based on the information above it follows that the banks most actively credited namely the businesses. In the branch cross-section the biggest volume of bank loans could be seen in the following branches: trade – 444.1 mln lats, commercial services 403.5 mln lats, financial mediation – 394.4 mln lats (figure 7).





**Figure 7.** Commercial bank loans granted to Latvian businesses over branches of national economy as to 31 December 2004 [16,1].

When analyzing the importance of bank loans in the total list of corporate creditors the author concluded that the proportion of bank granted loans in the total creditor volume is very different in various branches of economy (table 11).

**Table 11.** Proportion of commercial bank loans in the borrowed capital in branches of economy as to 31 December 2004 [16,1]

Branch	Proportion of bank loans, %
Agriculture	82.0
Processing industry	29.7
Electric energy, gas and water supply	22.3
Building	43.1
Trade	17.7
Transport, storage and communication	21.9
Financial mediation	74.4
Commercial services	29.8

In 2004 the biggest proportion of bank loans among creditors was in the branches of agriculture and financial mediation where it accounted respectively for 82.0 and 74.4%. However, the smallest proportion of bank loans in the borrowed capital could be seen in trade (17.7% of creditors) disregarding that in absolute figures trade had been issued most of loans. It means that other kinds of borrowed capital, for example, debts to the associated and related businesses, debts to suppliers etc., still play an important role in trade.

When choosing funding with borrowed capital businesses have to consider several sources of borrowed capital. If the interest rates offered by credit institutions are rising or do not satisfy the borrower it is worth considering the possibilities of issuing bonds. It might be particularly important for the companies with stable previous operation and large available loan collateral, for example, in the form of liquid fixed assets, thus they can offer bonds on profitable conditions for themselves in the market.

Joint stock companies that do not pay dividends and thus acquire cheap resources for funding their capital must take into account that in the future it might be difficult for them to raise funds by using the issuing of new shares. To attract potential investors joint stock companies must start the implementation of the steadily growing dividend policy.

As in Latvia the proportion of borrowed capital in the corporate capital structure is growing, the majority of businesses should carefully control their risk that arises in the case of using borrowed capital. In the case of too big proportion of borrowed capital companies may have to pay interest for using the borrowed capital not only from their profit but, in the worst case, to cover the interest payments they will have to sell their assets which might cause serious disturbances in the operation of the business.

Latvian businesses must try to increase the volumes of the profit gained as a result both the ROE and ROA will increase. In comparison with the Estonian businesses the ROE in Latvia is lower which suggests that in Latvia there is a potential for using capital more efficiently.

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# THE ENTRY OF FOREIGN BANKS INTO A TRANSITION ECONOMY: A CASE OF UKRAINE

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## **Abstract**

Banking sector reforms are one of the key economic reforms in a transition economy. Ukraine has one of the fastest growing transition economies in Eastern Europe. Despite the attractiveness of Ukrainian banking market, foreign banks have rather modest role in Ukrainian banking market yet. The aim of the paper is to give an overview of the banking sector development in Ukraine and to analyze the entry of foreign banks into Ukraine. The eclectic framework is used as the theoretical grounding to explain the entry of foreign banks into Ukraine. The results indicate that the banking sector has well recovered from crises in 90s and the financial sector has become very attractive for foreign investors. The share of foreign ownership in Ukraine's banking has sharply increased since the second half of 2005.

**Keywords:** *foreign bank entry, transition economies*

## **Theoretical background**

There are many theories which try to explain why firms start to internationalize. Although there is a growing body of literature on FDI, there is no comprehensive approach yet that would explain all

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different types of FDI. One of the most general theoretical frameworks of firm's internationalization is Dunning's eclectic theory (also known as the OLI theory) (see Dunning 1973, 1981, 1993). The OLI paradigm explains the FDI decision to be affected by three factors – ownership, location and internalization. It explains the reasons why firms decide to start investing abroad, what the preconditions (firm-specific advantages) are, where they invest (where are the location advantages complementing their ownership-specific advantages available), and why they select FDI out of many forms of foreign market entry (maximization of their rents). The important aspect of the OLI theory is that the location and ownership advantages are a necessary but insufficient condition for FDI. They should be complemented by internalization, which helps to take advantage of such conditions.

Dunning (1988) suggests that the three main motives for international production, namely, market seeking, resource seeking and efficiency seeking can be explained by the endowment/efficiency paradigm. As for market seeking, the ownership advantage that can be exploited in the host country to get access to some specific market or resource defines the investment location. The market failure affects the location and internalization by risk distribution, several kinds of market entry barriers and the oligopoly-like market structure. The resource-seeking motivation of FDI considers production endowments and other characteristics at home and in the host country to get access to production resources. The efficiency-seeking argument of FDI looks at economies of scale and scope, risk reduction through product diversification, and taxation.

In Dunning (1994) another FDI motivation is added – strategic asset seeking. Strategic asset seeking is a motivation for sequential FDI. The aim of the strategic asset seeking investment is to acquire resources that are important to enhance the capabilities and advantages of an investor. It is complex integration of strategies that are to seek markets where the corporation's general objectives can be best performed.

Yannopoulus (1983) applied an eclectic paradigm to the banking sector, suggesting that multinational banks have location-specific advantages which may include follow-the-client and country-specific regulations. Ownership advantages can be, for example, easy access

to vehicle currency. Internalization advantages can be informational advantages and access to local deposit bases.

Ownership advantages are crucial in the eclectic framework, as it is the possession of these advantages that allows the foreign bank to overcome the advantages enjoyed by the domestic banks due to incumbency (Williams 1997, p. 81).

Although the eclectic paradigm is widely applied into different industries, there has been also a lot of critique to Dunning's OLI paradigm. OLI theory combines different earlier theories of internationalization. In critical assessment of eclectic theory (Itaki 1991) argues that there is no need to stress ownership advantages to explain international activities of multinational corporations as they are already captured in internalization theory. Another critique to eclectic theory is the lack of causality between variables described in it. Williams (1997, p. 83) argues that it is incorrect to assume that multinational bank needs ownership advantage compared with domestic banks. Williams suggests that internalization alone is enough to cover ownership advantages. He also argues that based on eclectic theory it is not possible to set up testable hypotheses.

The author suggests that an integrated approach to the OLI paradigm and the financial liberalization framework can be used to analyze the internationalization process of banks in the CEE countries<sup>2</sup>. The eclectic paradigm stresses the importance of bank-specific factors of the FDI decisions. The OLI theory assumes that internationalization location is affected by the ownership advantages of multinational banks. The assumption that international banks are more developed than domestic banks is well applicable to the internationalization of transition banking markets. Ownership advantages can be better management skills, better capitalization, and high reputation (Rugman, Kamath 1987).

But, as suggested by Bonin and Ábel (2000, p. 8), foreign banks' entry into the emerging markets shows that this entry is more an aggressive rather than defensive approach (customer-following). Multinational banks are often market seekers who try to enter transition markets to gain new business opportunities at lower costs (aggressive expanding). Therefore we find that the OLI paradigm

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<sup>2</sup> See Uiboupin 2005 for more detailed description of the framework and some more empirical evidence from other CEE countries.

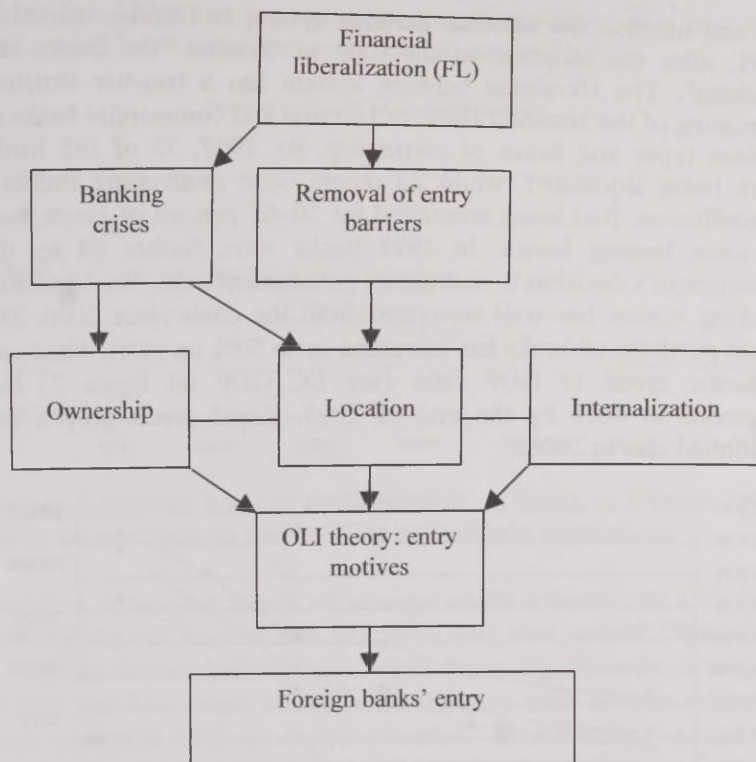


could fit better for explaining the motives and strategies of foreign banks in the CEE countries, although internalization theory is not strictly controversial to the OLI theory. The integrated approach to the internationalization of banks in the CEE countries is illustrated in Figure 1.

In my opinion that the traditional theories of multinational banking are not always sufficient to explain the activities and implications of multinational banks in transitional banking markets. Nevertheless, the OLI theory is quite suitable for explaining how foreign banks can exploit their ownership advantages in transition countries, growing in the growing markets with comparatively high margins. The OLI theory alone does not explain all the motives and effects of foreign banks' activities in the CEE banking markets as it does not cover the structural changes and market liberalization effects in emerging markets. Although the OLI theory stresses the importance of specific markets for FDI, it does not explain the timing of FDI into banking. Therefore the financial liberalization (FL) framework is integrated with the eclectic paradigm.

The liberalization and opening up for foreign banks creates an opportunity for foreign banks to enter the market. FL thus affects the location of foreign entry (see Figure 1). The FL framework explains the effect of market liberalization on capital markets. Several studies (Gros and Steinherr 1995, Bonin et al 1998, McKinnon 1993, Murinde and Mullineux 1999, Ábel et al 1998) have shown that banking market liberalization often leads to a banking crisis in the early stages of transition to a market economy. During a banking crisis, foreign banks can best exploit their ownership advantages (liquidity, capitalization, reputation, risk management) as local banks are illiquid and less trustworthy. A banking crisis in a specific market will significantly reduce the value of domestic banks, creating an opportunity to take them over at a lower price. Thus, banking crises create additional locational advantages for foreign banks.





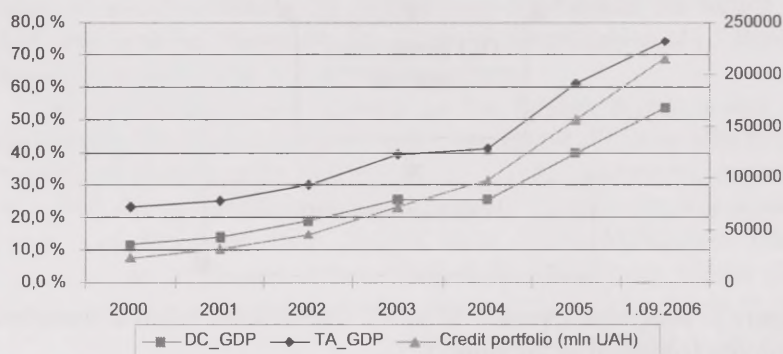
**Figure 1.** Integrated approach of banks' internationalization in transition countries (compiled by the author).

The question of the timing of foreign entry is closely associated with the banking crises that occur after the FL. Generally, I propose that foreign banks' entry motives in transition economies can be explained by the OLI paradigm with enhanced location-specific advantage due to additional pull factors created by FL.

### **Overview of banking sector development in Ukraine**

Next the main trends and developments in Ukrainian banking sector are discussed. Similarly as in many other CEE transition countries, there has been a rapid development of Ukrainian banking sector during last 10 years, but there has been also a severe banking crisis at

the end of 90s. The national banking system in Ukraine started in 1991, after the adoption of the Law of Ukraine “On Banks and Banking”. The Ukrainian banking system has a two-tier structure consisting of the National Bank of Ukraine and commercial banks of various types and forms of ownership. By 1997, 32 of 195 banks were being liquidated, while 25 others were undergoing financial rehabilitation. Bad loans accounted for 50–65 percent of assets even in some leading banks. In 1998 banks were further hit by the government’s decision to restructure government debt. The Ukrainian banking system has well recovered from the crisis since 2000. The credit portfolio of banks has increased up to 50% on yearly basis and domestic credit to GDP ratio (see DC\_GDP on figure 2) had increased to 40% by the end of 2005. Rapid credit growth has continued also in 2006.

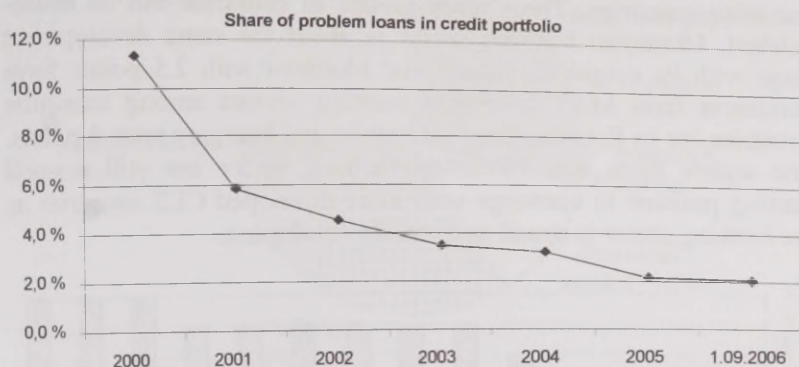


**Figure 2.** Domestic bank credit in Ukraine 2000–2006. Source: National Bank of Ukraine; author’s calculations.

Total banking sector assets to GDP ratio (see TA\_GDP on figure 2) was 60% at the end of 2005. Ukrainian banking sector has still strong growth potential as in more developed transition banking markets (i.e. Hungary and Estonia) DC\_GDP has already exceeded 100% level.

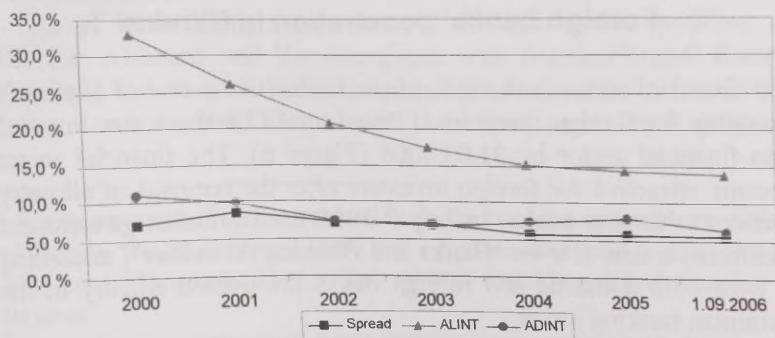
Figure 3 shows the dynamics of credit portfolio quality of banking sector in Ukraine. The assets quality of Ukrainian banks has significantly increased during last five years. The share of problem loans in total credit portfolio has lowered to 2% in 2005. This indicates that Ukrainian banks have sound credit policy. Nevertheless, it must be

noted that Ukrainian economy has growth rapidly during last years and probably not all of the credit risk has realized yet.



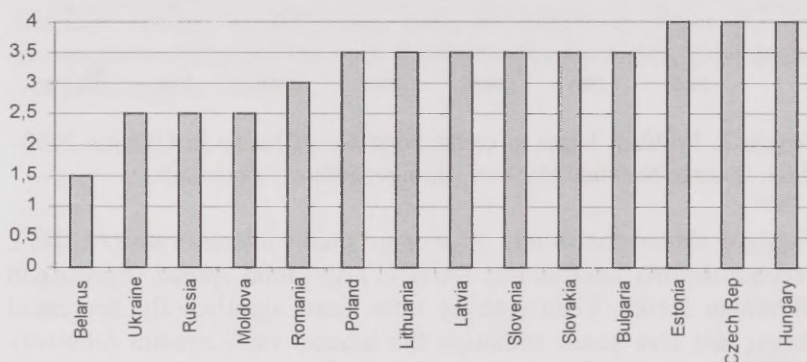
**Figure 3.** Problem loans in credit portfolio of banks in Ukraine 2000–2005. Source: National Bank of Ukraine; author's calculations.

Figure 4 shows the trends of average credit interest rate (ALINT), average deposit interest rate (ADINT) and total spread (Spread) in Ukrainian banks. Loan interest rates have significantly decreased during last five years, although the interest rates remain relatively high compared with developed countries. Total banking spread has been quite stable at around 5–6%, while the difference between average loan and deposit interest rate has clearly declined, that is a sign of increasing competition.



**Figure 4.** Total bank spread and average interest rates on credit and deposits of banks in Ukraine. National Bank of Ukraine; author's figure.

Figure 5 presents EBRD's (European Bank for Reconstruction and Development) estimates of banking sector reforms in selected transition countries. Three main groups of countries can be distinguished. Ukrainian banking sector is about the same development stage with its neighbors Russia and Moldova with 2.5 points form maximum five. Most developed banking sectors among transition countries are in Estonia, Czech Republic and Hungary with 4 points. The author finds that Ukrainian banking sector has still a good starting position to converge with more developed CEE countries as the banking sector is sound and rapidly developing.



**Figure 5.** Banking sector development in CEE countries in 2005. Source: EBRD 2006; author's figure.

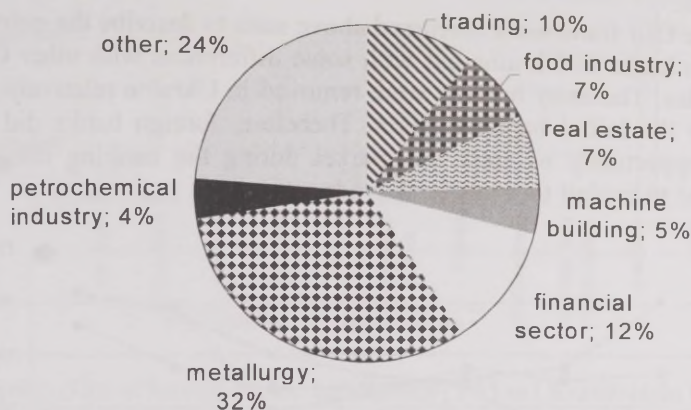
### Foreign banks' penetration in Ukraine

The financial sector is the second most attractive sector of Ukraine's economy for foreign investors. 12% of total FDI stock was invested into financial sector by 31.03.2006 (Figure 6). The financial sector became attractive for foreign investors after the removal of all entry barriers to foreign banks. In July 7 2005 the Ukrainian government confirmed a new law on "Banks and Banking Activities", according to what both domestic and foreign banks are treated equally in the Ukrainian banking sector.

Metallurgy is the core industry of Ukraine and therefore 32% of total foreign direct investments' stock is invested into Ukraine's



metallurgy. Other attractive sectors are trading, food industry and real estate business.



**Figure 6.** FDI distribution in Ukraine by type of economic activity (31.03.2006). Source: National Bank of Ukraine, 2006.

Foreign banks' share in Ukrainian banking market remains relatively low but is increasing since 2005. From total share capital of banks in Ukraine only 10% belong to foreign residents in 2005, by September 2006, 22% of banks' share capital was already foreign owned<sup>3</sup>. (see FSCapital on Figure 7). The number of foreign banks has increased from 7 in 2000 to 11 in 2006, this makes 7% of total bank number in Ukraine (see FBSN\_100 on Figure 6). Bank with at least partial foreign ownership<sup>4</sup> encountered 18% form total number of banks in September 2006.

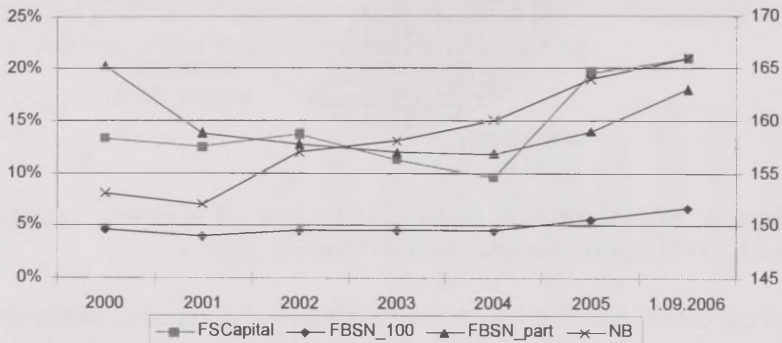
As of 01.09.2006, there were 11 foreign banks operating in Ukraine: Alfabank and Vneshtorgbank with Russian origin; Kalion and Bank Pekao with Polish origin; XFB Bank (HVB) from Germany; Raiffeisen Bank from Austria; Aval Bank owned by Raiffaisen;

<sup>3</sup> For comparison: foreign ownership in the banking sector share capital of Belarus was in January 1 2006 9.3% and has decreased compared with 2005 by 2.5% points. That is the result of instable political situation in Belarus.

<sup>4</sup> According to Commercial Code and the Regime of Foreign Investment Act of 19 March 1996, significant foreign ownership is considered from minimum 10% of bank's charter capital.

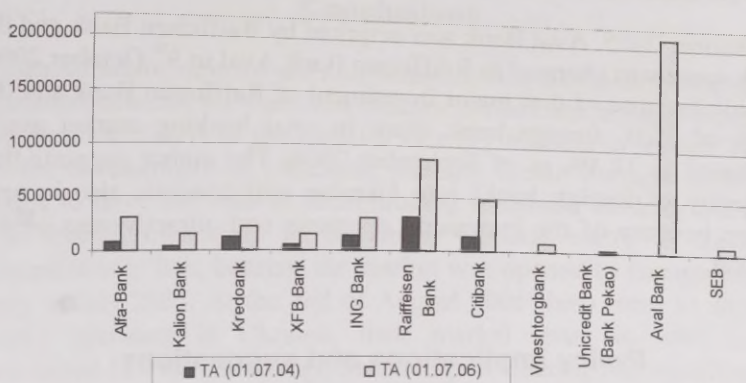
ING Bank from Netherlands, Citibank from USA, and SEB from Sweden.

The OLI framework discussed above suits to describe the entry of foreign banks in Ukraine but with some differences with other CEE countries. The entry barriers were removed in Ukraine relatively late – after the initial banking crises. Therefore, foreign banks did not have opportunity to enter the market during the banking crisis in Ukraine to exploit their ownership advantages.



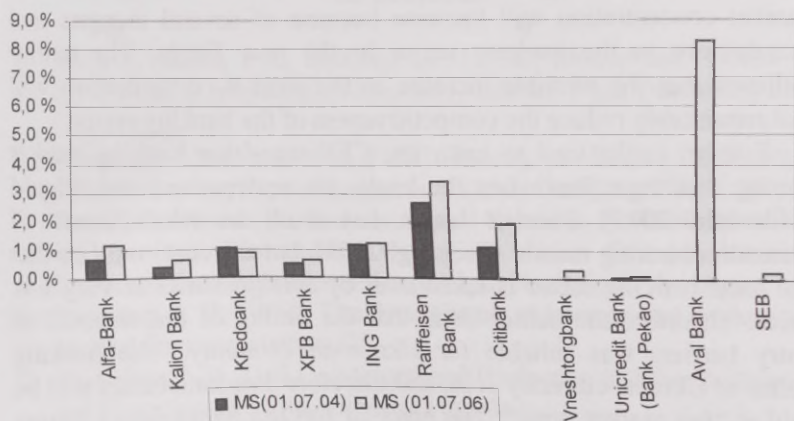
**Figure 7.** Share of foreign banks in total number of banks in Ukraine. Source: National Bank of Ukraine; author's calculations.

Figure 8 shows the amount of total assets of foreign banks in Ukraine. Figure 8 indicates that Raiffeisen bank is currently the biggest foreign bank in Ukraine which also had largest assets' growth from July 2004 to July 2006. There has been an increase of assets in all foreign banks, but the growth has been quite moderate indicating that there are some obstacles for foreign banks activities in Ukraine.



**Figure 8.** Size of foreign banks' total assets (TA) in Ukraine (mln UAH). Source: National Bank of Ukraine; author's figure.

Figure 9 shows the market share of foreign banks in total assets. The market share of foreign banks was quite modest up to 2005. In 2005 foreign banks share in total assets was only 7.4%. The market shares have increased for Alfa-Bank, Raiffeisen Bank and Citybank, market shares of other foreign banks have remained same or even decreased.



**Figure 9.** Market shares of foreign banks in Ukraine (% from total banking market assets). Source: National Bank of Ukraine; author's calculations

In October 2005, Aval Bank was acquired by Raiffeisen Bank and the bank name was changed to Raiffeisen Bank Aval in 9<sup>th</sup> October 2006. Mainly because of that major investment of Raiffeisen Bank and the entry of SEB, foreign bank share in total banking market assets increased to 18.4% as of September 2006. The author suggests that the entry of foreign banks into Ukraine will continue also in near future because of the increasing openness and attractiveness of the market.

### **Policy implications and suggestions**

The author finds the removal of entry barriers for foreign banks in Ukraine to have several positive implications and good timing. The forthcoming entry of foreign banks will improve the capitalization of banks and increases the overall stability of the financial sector. Based on the experience new member states of EU it can be hypothesized that there will also be clear improvement in financial services' quality and access to financial services. The author suggests that the presence of multinational banks in Ukraine would improve the competitiveness of Ukrainian banking market, nevertheless, it is likely that the market concentration will increase because of several mergers and acquisitions in the banking sector in the near future. The author believes that the possible increase in the market concentration will not remarkably reduce the competitiveness of the banking sector.

Foreign banks tend to enter the CEE transition banking market during banking crises when the banks are undervalued and illiquid (Uiboupin 2005). Foreign banks can work as rehabilitators of transition banking market (Tschoegl 2003), but the cost could be that the local banking sector is taken over by foreign banks at very low price. Therefore the author finds that the timing of the removal of entry barriers was suitable for Ukrainian economy. The banking sector of Ukraine currently solid and therefore domestic banks will be sold at "fair market price". The entry of foreign banks into Ukraine will also improve the overall business climate in Ukraine and will attract additional FDI also into Ukrainian non-financial sector and promotes overall economic growth.



## Conclusions

Financial sector reforms are considered as one of the most important economic reforms for transition countries. The current paper analyzed the possible effects of the removal of entry barriers to foreign banks on the development of Ukrainian banking sector. Foreign banks are found to have key role in rehabilitating transition banking markets. The foreign ownership in Ukrainian banking sector is currently comparatively low, because the market was opened to foreign capital only in July 2005. At the end of August 2006 there were 11 foreign banks operating in Ukraine, their market share in total assets accounted 18.4%. The foreign ownership in banking has significantly increased since the removal of entry barriers in 2005. The author finds that the removal of entry barriers has good timing, as the Ukrainian banking sector is currently well performing and solid, thus the banks will be sold at higher price to foreign capital. The author also suggests that Ukrainian banking sector will benefit from foreign banks' entry by better financial services quality and more stable and effective financial sector.

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# PROJECTIONS OF SOCIAL INSURANCE SYSTEM DEVELOPMENT IN LATVIA

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*University of Latvia*

## **Abstract**

The article contains observation of three main areas in Latvia, which are main drivers of pension system:

- (1) Social Insurance Budget, its development during last decade and its future projections in terms of contribution ,
- (2) Limitations of pension age for males and females in Latvia and its future assessments,
- (3) Dependency ratios between working age population and retired part of population.

The study provides analysis of latest developments of social insurance budget and its expected contributions towards Latvian pension system in the future. There is also established the analysis of estimates of social contribution rates, which would be needed to cover pension expenditures currently and in the future.

The article also includes short analysis of pension age legal limitations in the future and their comparison to average retirement ages in European Union. The final part of this study covers analysis of population structure in Latvia in terms of dependency between working age population and retired part of population as well as development trends of these ratios in Latvia and other EU countries. The research was based on quality and quantity analysis methods using published scientific literature sources of Latvian and foreign authors.

**Keywords:** *social insurance, pension system, ageing of population, financial defined contribution (FDC) scheme, notional defined contribution NDC PAYG scheme*



## Introduction

During the period of time since regaining independence, significant changes have taken place in the area of public welfare provision in Latvia. The most significant achievement of the social protection reform is the establishment of a national social insurance system. It covers social insurance in the event of income-loss due to sickness, disability, unemployment and occupational accidents and diseases, and provides old-age pension insurance, survivor and maternity benefits. This report examines the medium and long-term trends and developments of the social insurance system, and particularly the financial situation of public pension system, which accounts for the biggest part of social spending. This article identifies also some outstanding issues regarding the public old-age pension system and latest trends in labour market in Latvia and its affect to social insurance collections in the future.

### *Social Insurance Budget*

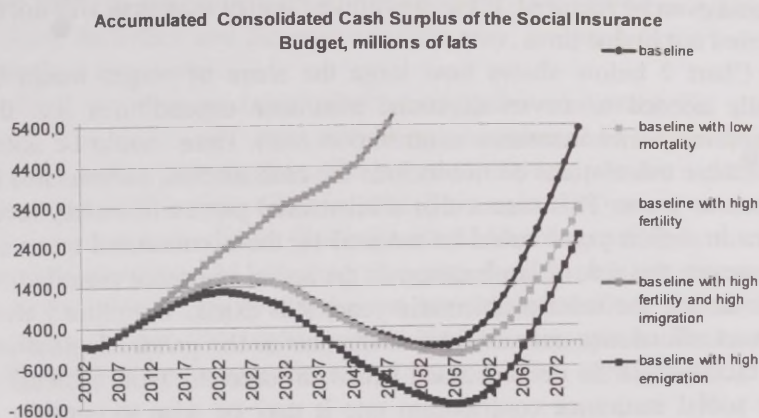
The social insurance system in Latvia is based on two key principles:

- a close link between contributions and benefits;
- solidarity between payers of social insurance contributions and recipients of the social insurance benefits, i.e. current social insurance benefits are financed from the current social insurance contributions.

Several activities have been carried out to ensure the cost efficiency of the social insurance financing policy. The most welcomed was the reduction of the social insurance contribution rate from 38% in year 1996 to 33.09% from 2003. All social insurance contributions paid are individualised and registered in individual accounts. This helps discourage underreporting of income. The ceiling on the maximum amount of the state social insurance contribution payable, and implicitly covered earnings, and the minimum amount payable by the self-employed also contribute to the cost efficiency of the system. Yet, because of political decisions and financial turbulence in late 1990s, the accumulated reserves in the social insurance budget in Latvia became negative, hence creating an additional tax for the system in the mid-term. However, projections show that because of



the more or less favourable present age structure of population and continuing mandatory increase of the minimum retirement age this problem, at least for the medium term future, will gradually be resolved and a positive accumulation of reserves will start from year 2007. The cash surplus in the social insurance budget has become positive already in 2002, but there is still a debt accumulated from earlier years.

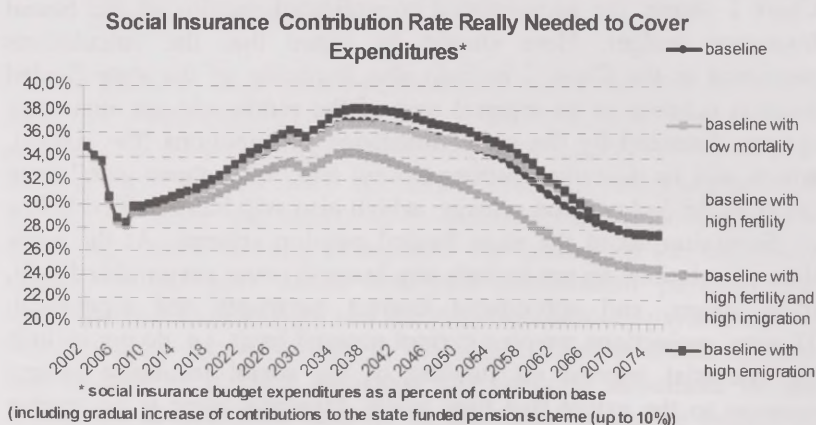


**Chart 1**

Chart 1 shows the accumulated consolidated surplus of the Social insurance budget. Here should be noted that the calculations presented in the Chart 1 include also financing of the state funded pension scheme as an integral part of the public old-age insurance system, financed by the social insurance contributions (the subject, which will be described further below) and “inheritance gain” from the state funded pension scheme, which also will be described below in discussion about the state funded pension scheme. At the same time calculations do not include any loans to cover accumulated debt, if it occurs, and subsequent interest payments and repayment. Thereto, projections are on a current account basis, i.e. do not include the potential interest on funding of the social insurance budget reserves to the extent that they occur. Presently there is no reserve fund. This option is discussed below as an essential element of future policy development.

Chart 1 clearly shows that notwithstanding an eventual deficit which most likely might occur in years of high demographic pressure and, as will be shown below, because of the introduction of public funded pension scheme with ambitiously large size of contributions – the social insurance budget might be successfully managed accumulating reserves in surplus to fund expenditures when the demographic pressure is the greatest. Under the more pessimistic scenarios an increase of the social insurance contribution rate for some period would even be required, if the appropriate policy measures will not be carried out in due time.

Chart 2 below shows how large the share of wages would be really needed to cover all social insurance expenditures (i.e. the necessary social insurance contribution rate). Here should be noted that these calculations do not include the cash surplus, accumulated in previous years. This means that a substantial part of necessary revenues in deficit years could be covered by the accumulated reserves. However, the risk of an increase in the social insurance contribution rate during the most problematic years still exists. Therefore Latvia cannot afford any unfinanced amendments to the present legislation. In fact, as will be demonstrated below, in order to avoid increasing the social insurance contribution rate it may be wise to consider a smaller scale for the funded pension scheme.



**Chart 2**

Financial challenges to the social insurance system are illustrated also by examining directly the development of the (real valued) revenues and expenditures in the long run.

In the more optimistic scenarios with higher real wage growth or optimistic demographic growth there is no deficit. In the other scenarios, the coming 55 years are characterized by a surplus period through around 2025 followed by a deficit period to around 2057, with a steady recovery thereafter. Under scenarios with cash deficits after 2025, in principle, cash surpluses acquired to 2025 can be used to cover the deficit and the most effective way, as noted above, would be to fund this money.

Total spending on social insurance appears modest by EU standards. The total social insurance budget revenues and expenditures (including also contributions for the state funded pension scheme) comprised 10.7% of the GDP in 2002. This ratio will remain at about this level also in the future (Table 1). But the total spending on social insurance services, i.e. including also state funded pension scheme's pensions (which in our calculations are separated from the social insurance budget, as might be provided by the private insurance companies) will comprise about 14–15% of GDP in 2050–2070s.

**Table 1****Spending on Social Insurance Services as a Percent of GDP**

Baseline	2002	2010	2030	2050	2070
Social insurance budget revenues*	10,71%	9,60%	10,23%	10,83%	10,91%
of which: social insurance contributions	10,56%	9,43%	9,95%	10,37%	10,44%
Social insurance budget expenditures*	10,72%	8,54%	10,56%	11,15%	8,87%
Total spending on social insurance services**	10,72%	8,54%	10,69%	14,58%	14,21%

\* including contributions to the state funded pension scheme

\*\* including social insurance budget expenditure and state funded pension scheme pensions

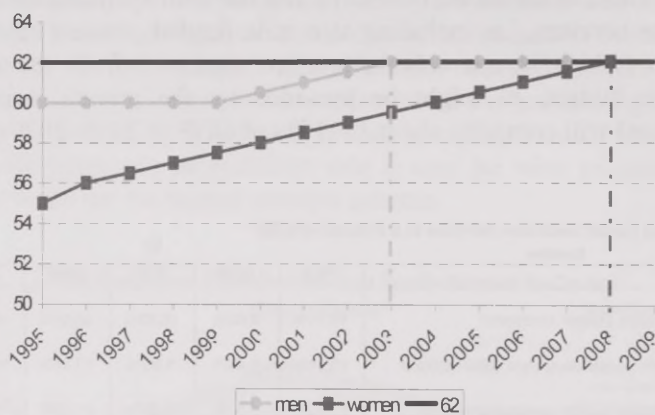
The inter-country differences in the ratio of social insurance expenditures in GDP depend on a number of factors, in addition to the generosity of the systems. It also depends on the existence of non-public pension schemes that substitute for social insurance, including compulsory insurance, paid by employers (e.g. sickness insurance). In addition, economic growth, financial market



development (if state funded pensions are taken into account) and population aging make a difference in international comparisons. The share of wages in GDP, assumed for Latvia is also important. It could become higher than that assumed, which would also result in a higher ratio of wage-related benefits to GDP.

### Pension age developments in Latvia

The politically acceptable compromise for Latvia's people was a gradual increase of the statutory minimum retirement age from 55 for women and 60 for men until it reaches 62 for both men and women. A higher limit for the minimum retirement age was considered to be too far-reaching while the state economy and demographic situation is improving. The transition to the retirement age of 62 is carried out gradually.



**Chart 3.** Statutory minimum retirement age

Assuming economic growth and prosperity will gradually affect life expectancy – as we have discussed under the demographic assumptions – a slight increase in the retirement age to age 63 in 2030 is assumed for the long-term future. We have to admit that since people are assumed not to postpone retirement past the age of 62 even though life expectancy is increasing, such a low retirement age will automatically hold down the yearly pension amounts and, accordingly, projected income replacement ratios. There is no way of



knowing what people will do as life expectancy increases, but certainly some will postpone retirement past age 62 in the coming decades, which means that the assumption used in the calculations is certainly conservative.

There is a guaranteed pension minimum that establishes the lowest benefits that can be granted under the PAYG pension scheme. Such guarantees are essential especially during the transition period to the pure NDC scheme, but even in the long run, since there will always be some long-time poor. These additional costs are included in the calculations.

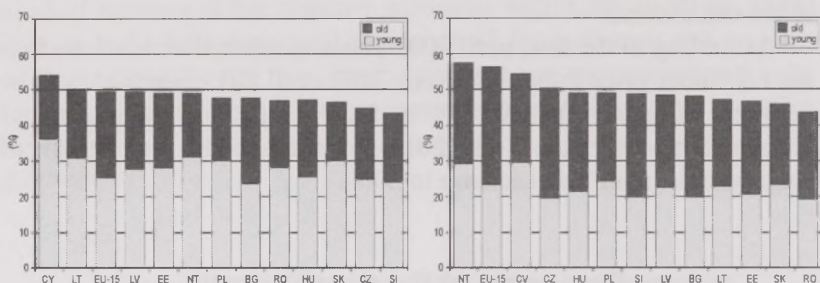
According to the law, until 2002 pension indexation was based on the consumer price index, but from 2002 until 2011 pensions will be adjusted using the actual CPI and 25% of the real growth of contribution wage sum. From 2011 the share of the real growth of wage in indexation will increase to 50%.

### **Prospects of the development of social insurance system in Latvia**

The social insurance reform in Latvia is completed. The examination of the system's development in the long-term future presented in this report has shown that theoretically, within the overall contribution rate about 33% there is a room to pay for all social insurance commitments, including reasonable ambition for the size of state funded pension scheme. The report has stressed the need to protect accumulated reserves and reconsideration of limits for the state funded pension scheme's contributions, considering the system's stability securing. As long as the financial costs can be estimated much better with real information, the decision of 6, 7 or 8% (or 10%) going to the 2nd tier can in fact be postponed until this information is processed.

Focusing on the age groups that participate in the labour force, currently ageing in Latvia appears somewhat less advanced than in Western Europe. Latvia will benefit from a relatively youthful composition of the working-age population over the coming ten years or so, but then this will change because the small cohorts born in the 1990s will be reaching working age and replace larger cohorts becoming pensioners. This may severely hold back the

country's economic growth and put considerable pressure on the social insurance system, and especially the public pension system. The Chart 4 below indicates developments of age dependency ratios in 1999 and 2020, which indicates that Latvia and majority of others new EU joiner states will experience drastic decrease in working age population that will result slight increase number of retired population and emigration of working population to EU 15 countries after liberalising the working market for new EU joiners.



**Chart 4.** Total age dependency ratio 1999 and 2020

As at today there are already happening dramatic trends in labour market due to large emigration of working age population to Ireland and UK. By the end of 2005 around 40,000 people emigrated from Latvia (by official numbers of State Employment Agency). The estimates made by Ministry of Welfare made in 2003 showed that around 2060s the social insurance system in Latvia may be so loaded that almost one contributor will have to fully cover expenditures for one old-age pensioner. This creates a need for partial funding of the contributions of large cohorts to preserve them for future spending. The FDC scheme goes part of the way in doing this and reduces long-term demographic dependency. However, for the medium term it is important to begin now to consider the design and administration of the Reserve fund as an integral part of the NDC pension scheme and as a support to the social insurance budget.

Due to its construction, the new NDC PAYG pension scheme by itself is highly resilient to the sort of demographic and/or economic shocks, examined in the report. By ensuring proper balancing mechanisms, such as correct adjustment of pensions and pension capital, the NDC PAYG pension scheme in the long-term (when it will become

“pure” of transitional costs) is able to keep costs equal to contributions that create pension rights (i.e. 20%). This is shown by a hypothetical calculation without the FDC scheme. In other words, such a system is self-financing and is able to be financially stable in the long run.

The main risks of successful realization of the goals of the pension reform are related to the successful operation of the NDC PAYG pension scheme on which relies all public pension system. It is important that the objectives of the PAYG NDC scheme be fulfilled. This means that the minimum pension age must increase as presently legislated, that there should be an improvement in coverage in the contribution-based schemes, which will relieve the pressure on the guarantee, and that the principle of contribution-based old-age pension benefits is not weakened by introducing advantages for special circumstances without appropriate financial coverage from outside the system.

Taking into account legislation currently in force, various scenarios indicate that in around 25 years there is a remarkable financial problem for the pension system per se – although not for the overall social insurance budget. The question arises then, should the surplus in the overall budget be saved in order to finance the transition costs involved in introducing an FDC scheme with a contribution rate of 10% – or should future workers be compelled to pay for this? Alternatively, should Latvia settle for a lower contribution rate to the FDC scheme – still with necessary demographic funding (Reserve fund) for the NDC scheme but without creating a need to raise the contribution rate in the future?

In terms of philosophy and terminology, the FDC scheme's implementation cost, strictly speaking, is not a cost, but a transfer of resources in time and a form of saving and investing current resources to future higher level consumption. Although, as it can be seen in this report, without the appropriate reserves in the NDC PAYG scheme, the financing of the FDC implementation will reduce the resources which would be available for the other purposes for a long period.

Notwithstanding the challenges, considering economic, financial and social aspects, the multi-pillar system, promises more stability in relation to possible fluctuations affecting demographic and economic situation. The combination of a PAYG and a fully funded schemes helps to minimize the different risks inherent in each scheme. The



financial account scheme will provide as well the basis for sufficient accruals, which might promote the development of the financial markets and would have a positive impact on the economy.

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